The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 77, NO. 10 CHICAGO, ILLINOIS SEPTEMBER 3, 1921

THE ACUTE ELEMENT IN THE CHRONIC NEPHROPATHIES *

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It is my desire to emphasize in this paper a point not particularly new but one often ignored in practice: the frequent occurrence of an acute element in the course of cases of chronic nephritis, a group of diseases much studied, but still, as a rule, empirically and badly treated; and to urge a much more careful consideration of the importance of the kidneys as one of the most vulnerable and in our treatment least protected spots in the human organism.

One who follows carefully his cases of the chronic nephropathies will often notice slight rises of temperature which lack evident adequate explanation. If at the same time he is following the urine and the blood he will note that these periods of slight fever are accompanied by certain fairly constant chemical changes. It is seldom that a case of chronic nephritis is strictly afebrile. The urine changes are overlooked, since the customary methods of urine examination are not nearly accurate enough. The quantitative determination of the albumin must be made, not with the centrifuge or the Esbach tube, etc., but by the gravimetric method, a method which is rather time consuming and monotonous but nevertheless very much worth while.

A special study of the nephropathies which has continued over eighteen years has convinced me of the accuracy of the opinion that in chronic nephritis there usually are two processes to consider: first, the chronic, that is, the permanent element, the epithelial cell proliferation and the scar tissue formation, both of which are evidences of healing; and, second, an acute injurious element, of the nature of a definite acute nephritis, which perpetuates the disease and indirectly increases the permanent lesion. We might illustrate the course of the disease as follows: The kidneys with 100 per cent. of their tissue normal are attacked by an acute process, the result of which is the loss of a little functioning tissue. A second, a third, etc., attack reduces it still more. During the intervals between the attacks the renal tissue which remains may function as a normal kidney of smaller size, but as a rule the acute flare-ups follow each other too rapidly to allow the slightly injured renal elements to return quite to normal.

There are pathologically and also clinically several quite different types of chronic nephritis; but we believe that they agree in this, that chronic nephritis is not a progressive disease varying in severity at different periods but nevertheless progressing, but is rather a succession of slight, distinct, acute diseases distributed over years, each adding a little to the permanent injury of the kidney as a whole. The albumin, blood cells, renal cells and casts in the urine are evidences of the acute process and are, in amount and number, fairly proportional, on the one hand, to its severity and, on the other, to the previous good condition of the renal epithelium. The urine between two acute exacerbations may be perfectly normal even though the kidney be quite scarred. After the renal tissue, however, becomes considerably reduced in amount and that remaining permanently injured, the renal functional tests and the renal test meals will indicate in some degree its condition. This explains why the urine of previously normal persons may display such spectacular signs (temporary anuria, blood, a high percentage of albumin, casts of all description, etc.) during slight attacks of acute nephritis, after a football game or a Marathon run, etc., while that of a case of longstanding chronic nephritis may change relatively little during a much more serious flare-up. In fact, the more normal the kidney before the disturbance, the more spectacular will the urine changes be. This explains also why the man who for years has suffered from chronic interstitial nephritis may, a week or two before his death, void a urine practically normal which at death may contain only a trace of albumin and a few hyaline casts.[1]

In the light of recent experience, one may well doubt that chronic nephritis is essentially progressive; it is not a process which, once started, tends to continue because of a mechanism of its own; there is no necessary vicious circle which tends to greater and greater injury. The bad prognosis which is usually assumed is not due to the injuries the kidneys have received, but to those they are receiving and will receive. The patient does not suffer from one attack of nephritis, but from one thousand and one. If a case of chronic nephritis continues for several years, it is not because of the trouble (e. g., the scarlet fever) which started it, but because some active process (e. g., infected tonsils, abscessed teeth or infected bowel wall, one or perhaps several causes, one of which may begin after the disease is well under way) which has continued it, and we believe fully that, could the present injury be removed and future ones prevented, nature

* Read before the Section on Practice of Medicine at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Emerson, C. P.: Cylindruria, J. A. M. A. 46: 5, 89 (Jan. 6, 13) 1906.

would at once attempt and would in large measure succeed in improving the kidney condition. In other words, our success in treating well a case of chronic nephritis will depend on our ability to detect, to treat and to forestall these acute exacerbations, each one essentially a new disease. These acute flare-ups, are, some of them, of the nature of infectious complications; but others are the direct result of injudicious diet, exposure to cold or wet, overexertion, etc., and he treats his patients best who best succeeds in avoiding them. In support of this view I publish the accompanying charts, some of which are copied from an earlier paper,[2] and others from a thesis by Dr. James O. Ritchey,[3] who has studied the recent cases in the medical wards of the Robert W. Long Hospital.

Chart 1 illustrates an incident in the case of a boy, aged 16 years, with subacute nephritis who had been on a milk diet of 1,500 c.c. until his condition was stable and who then was given two raw eggs. At

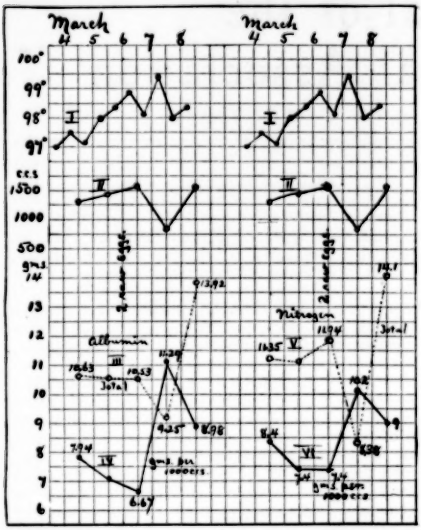

Chart 1 (W. A. G., man, aged 16, white, a sailor).—Curve I, temperature; Curve II, total output of urine in twenty-four hours. These two curves are repeated in both charts. Curve III, total output of albumin in twenty-four hours; Curve IV, output of albumin per thousand cubic centimeters of urine, and therefore a curve parallel to that of the percentage output. Curve V, total nitrogen output per twenty-four hours. Curve VI, the amount of nitrogen per thousand cubic centimeters of urine. This second chart is added to show the interesting parallelism between the albumin and nitrogen curves. March 6, the patient, previously on a diet of 1,500 c.c. of milk each day, was given two raw eggs which evidently increased the severity of the acute element of his nephritis. In this chart the rise in the percentage of albumin accompanies the rise in temperature.

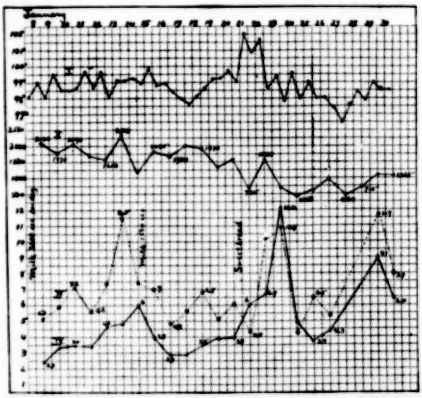

Chart 2 (same patient as in Chart 1).—Curve I, temperature. Curve II, total daily output of urine. Curve III, total daily albumin output. Curve V, albumin output per thousand cubic centimeters of urine. This boy had been on a pure milk diet, 3,000 c.c. per day. January 15, this was reduced to 1,500 c.c. per day, which seems to have improved his condition. January 21 he was given one creamed sweetbread, which so upset him that he later refused all food. Diet was gradually resumed on the 25th.

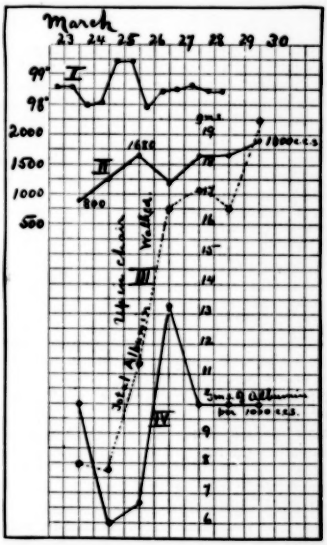

Chart 3 (C. H. L., man, aged 21, laborer, white).—Curve I, temperature. Curve II, total output of urine in twenty-four hours. Curve III, total output of albumin in twenty-four hours. Curve IV, output of albumin per thousand cubic centimeters of urine. March 25, the patient, previously in bed, was allowed to sit in a chair, and on the following day to walk. This chart illustrates the effect of exercise on the acute element of the nephritis.

once the temperature rose, the urine output fell, and the concentration of albumin at once rose. A little later the same boy (Chart 2) was given 3,000 c.c. of milk a day, and then this was reduced to one half. At once the condition would seem to improve. We then gave the boy one creamed sweetbread, which so upset him that it was three days before he could resume the diet, during which time the chart would suggest an acute nephritis. These two charts are fragments of several I have published which show the injurious

2. Emerson, C. P.: Metabolism in Nephritis, Johns Hopkins Hosp. Rep. **10**: 323, 1908.

3. Ritchey, J. O.: The Infectious Aspects of Nephritis, thesis for degree of Master of Arts, Indiana University, 1921.

effect of errors in diet. Some of these cases were followed carefully daily for weeks, and two for even six months.

Chart 3 illustrates the effect of too rapidly increased exercise. In Charts 4 and 5 (from Dr. Ritchey's thesis) it is seen that the rise in temperature is accompanied by a reduction in renal efficiency as determined by the phenolsulphonephthalein test. Chart 6 gives

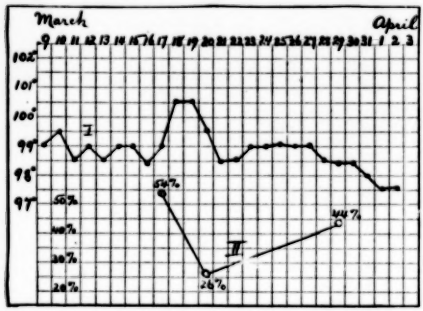

Chart 4 (W. S.).—Curve I, temperature. Curve II, functional renal test (phenolsulphonephthalein). This chart illustrates the depression of renal function during a period of fever.

the picture of urine and blood of a patient with subacute nephritis dying in uremia. The fever rises critically; there is marked retention of water, the blood creatinin and urea; the blood pressure, previously very high, begins to drop and the urine picture becomes that of very acute nephritis. It is customary to attribute the fever in such cases to a "terminal infection"; but in this case a very careful necropsy made with this point in view demonstrated nothing but an acute exacerbation of a chronic nephritis. Chart 7 illustrates the point that if the acute element is absent, a change in diet may produce a retention of water, but not an increase of the albumin concentration. Such a patient could receive a more liberal diet. In treating a patient it is the temperature and albumin concentration which we urge be followed; for, as long as these exacerbations recur, either some injurious element remains to be fought or else our treatment is not well planned.

It is very interesting that in all these charts the albumin and nitrogen curves ran parallel. I am not prepared to give an explanation for this interesting phenomena.

The question arises, What is the nature of these acute exacerbations? The present tendency is to attribute all febrile processes to infection and, indeed, some would explain nephritis itself as infectious in nature. This, however, has not been proved by others, our repeated blood and urine cultures made with the most careful technic have failed to support this opinion, and I doubt that nephritis itself or its acute exacerbations are the result of direct infection of the kidney substance. True, the kidney tissue is sometimes infected; but the pathologic and the clinical pictures of those cases are not those of a chronic nephropathy. And yet, probably most will agree that nephritis is usually the indirect result of infection somewhere in the body, and that many of these acute exacerbations indicate the activity of one or more latent focal infections, in the tonsils, teeth, nose, appendix, gallbladder, etc., but also of the bowel wall and the bronchial mucosa, while other flare-ups are evidence of indiscretions in diet, in exercise, of overwork, exposure to cold, etc.

While infection of the upper respiratory tract, of the mouth, teeth, nose and tonsils, etc., would seem especially important in the production of nephritis, yet I would call attention to the intimate, almost specific, relationship between the disturbances of the skin and disturbances of the kidney. Acute nephritis may follow a slight chilling or wetting of the skin, and accompanies various skin rashes, even the apparently insignificant ones. The treatment by sweating, which most

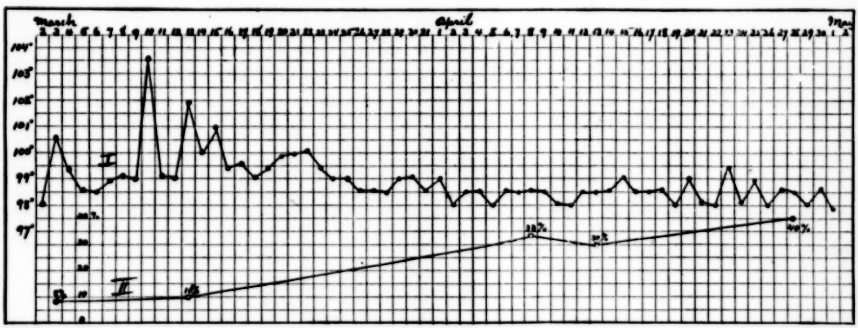

Chart 5 (G. B.).—Curve I, temperature. Curve II, phenolsulphonephthalein output. This, like Chart 4, shows the coincidence of fever and a low renal functional efficiency.

will grant is of value in nephritis, certainly does not owe its beneficial effect to the direct elimination of any toxin or of any urine constituent. It would seem, rather, to be beneficial in direct proportion to its effect on the skin and its functions. Improve that, and you improve the kidneys. And the same thing also might possibly be said of the treatment by purging; for the wall of the bowel is an external membrane, and the granted value sometimes seen of free purgation may be

due not so much to elimination as to its ability to improve the condition of the bowel wall itself.

May I now urge a point of view seldom mentioned, that the kidney is, after all, a very weak organ? While it may "link man's blood plasma with brackish waters of the remotely ancient oceans," nevertheless the kidneys are about the weakest spots in the whole body. It is of interest to one interested in comparative anatomy that the kidney is perhaps the only organ of our body Nature has tried three times to make and abandoned the first two attempts practically without any salvage so far as organs of elimination are concerned. While an argument from comparative anatomy may carry little weight in human pathology, the same fact stands out even more clearly in human embryology. The pronephros is a well developed organ of the small embryo, but soon is entirely abandoned. A part of its duct may give rise to the mesonephros, certainly an important well developed organ of the embryo, and yet of this none is salvaged for the production of the metanephros, Nature's third attempt, our kidney. Of course, one might argue that these three attempts should produce a very superior organ; but pathology indicates the reverse. Its function cannot be very elaborate. The formation of urine is partly mechanical and partly a vital selective reabsorption of simple substances; but even to accomplish this apparently simple function, the kidneys require a surprising amount of oxygen in proportion to their weight. Few organs are as sensitive to disease as they, for at necropsy they are more often found injured than many other organs whose functions would seem more elaborate. As the direct cause of death the kidneys are the third organ in importance, while indirectly they are even more harmful.

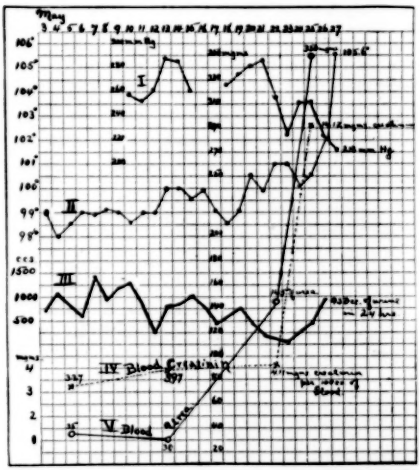

Chart 6 (Mrs. L., aged 45, white).—Curve I, systolic blood pressure. Curve II, temperature. Curve III, total output of urine per twenty-four hours. Curve IV, that of blood creatinin. Curve V, that of blood urea. The patient died, May 27, in uremia. Necropsy disclosed chronic nephritis combined with acute nephritis. No evidence of terminal infections could be found.

Our plea is that we consider the kidneys as very weak spots of the body and treat them accordingly. This means the early removal of all infected foci and particular caution when treating a disease which often affects the kidney. If the kidneys are affected we would urge the importance of following the temperature chart and albumin concentration very carefully; for as long as these show even slight rises which cannot be well explained in any other way, they mean either that we must continue the search for infection or that we are not wise in our directions as to the diet, exercise etc., of our patient.

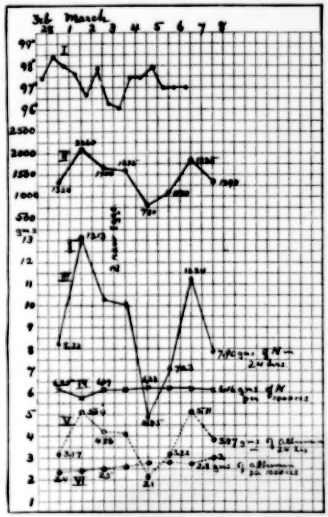

Chart 7 (A. W. M., man, aged 39, white; a farmer).—Curve I, temperature. Curve II, urine output per twenty-four hours. Curve III, total nitrogen output per twenty-four hours. Curve IV, that of nitrogen per thousand cubic centimeters of urine. Curve V, total albumin output per twenty-four hours. Curve VI, amount of albumin per thousand cubic centimeters of urine. This patient had been on a pure milk diet of 1,500 c.c. per day until March 3, on which date he was given two raw eggs. His nephritis evidently contained no superimposed acute element, for although there was a marked reduction in the urine output and consequently in the output of nitrogen and of albumin, yet the temperature and the percentages of these urine constituents did not change.

ABSTRACT OF DISCUSSION

DR. CHANNING FROTHINGHAM, Boston: On hearing Dr. Emerson emphasize the fact that the estimation of the nitrogen in the urine may indicate the amount of acute injury going on in the kidney, it would seem as though this test would be a step in advance in giving us some guide for outlining treatment. However, I can not help wondering whether an increase in nitrogen means any actual fresh injury to the kidney. Although, in view of Dr. Emerson's observations, it probably does, I have always been impressed with the difficulty in deciding either by a study of the patient's general condition or by a study of the patient's urine what is going on in the kidney. I think the tendency has been in recent years in renal studies to deviate too much from trying to keep in mind what lesions are actually going on in the kidney. This tendency is, perhaps, excusable somewhat when we realize that there are not tests at the present time which permit us to decide what type of lesion is going on in the

kidney. Although the pathologist can differentiate a half dozen types of acute nephritis, the clinicians are unable to separate them during life. If special studies could classify these cases during life, it would be of tremendous importance so far as prognosis is concerned, as the end-results of the various acute lesions vary considerably. Dr. Emerson has raised an important point in suggesting that chronic nephritis may be simply a summation of repeated acute injuries to the renal tissue. Although I think chronic nephritis does originate in this way, I also feel that chronic nephritis may consist in a progressive degeneration of the renal tissue dependent either on disturbance in its nutrition on account of scars from former lesions, or on some toxin originating elsewhere in the body and coming to the kidney for excretion.

DR. EDWARD C. ROSENOW, Rochester, Minn.: In connection with a series of experiments, results have been obtained which I think have a direct bearing on diseases of the kidney as one of the many causes of diseases of the kidney so well brought forward by Dr. Emerson. During a course of a series of experiments in which bacteria, streptococci chiefly, were successively passed through animals by intravenous injection, it was found that as they were brought from almost no virulence to higher virulence there was a certain point where localized focal lesions in the kidneys were the common result. And in a series of cases, not many but some, some chronic, others acute, by the intravenous injection of organisms from foci of infection, as in the tonsils and teeth, a very striking example of localizing the infection in the kidney has occurred. In a further study of this point, Meisser and Bumpus have shown that many teeth, nonvital teeth, show no infection, yet an organism cultivated from these apparently harmless foci and injected intravenously caused pyelonephritis; the organisms tended to localize in the kidney. The type of lesion in these experiments is such as would make one strongly think that these acute exacerbations represent a slight acute infection; and in the experimental work this interesting fact has been noted, that is, that the kidney has great recuperative powers and will destroy these organisms in a few days so that even though a lesion may be seen, the culture is negative. Somewhere in the body there must be a focus which is responsible for these exacerbations. We have succeeded in producing focal, yet disseminated nephritis, the areas and lesions varying in age, by the devitalization of teeth in dogs and by simultaneously infecting the pulp chambers with organisms which have the power to localize and produce lesions of the kidney.

DR. CHARLES P. EMERSON, Indianapolis: It is evident that I made a mistake in emphasizing as much as I did the percentage of the nitrogen output. We merely noted that the nitrogen concentration of the urine ran almost parallel to the albumin concentration. It is the curve of the albumin-percentage output which we followed and urge you to follow. The nitrogen curve is interesting and curious, but not at all well understood. There are, indeed, many forms of nephritis. We got no farther than to recognize anatomically the large red and the small red kidney, the large white and the small white kidney. But clinically, all patients with any form of chronic nephritis show, at times, slight rises of temperature and definite changes in the blood and urine. We believe that these indicate an acute addition to the disease and a continuation of a process which Nature is trying to heal. Undoubtedly, focal infections are important in the causation of nephritis; but this does not mean that we should at once pull out the infected teeth and remove tonsils, for in some cases we may cause an acute exacerbation which may prove serious, while in other cases it may be too late. We should, if possible, remove infection early and, if later, we should first carefully prepare the patient for operation. The one point I desire to leave with you is this: any protein intoxication, whether it be from a focus of infection, from the food, the result of exposure to cold, or of overexertion, may add an acute element to the patient's disease which shows itself in the patient's urine and temperature charts. These responses usually are too rapid to indicate new renal infections. By watching for these little flare-ups and using care to avoid them, we may in the future be more successful in the treatment of our patients with chronic nephritis.

TRUER STANDARDS IN THE DIAGNOSIS OF HEART FAILURE

A HITHERTO UNEMPHASIZED FORM OF PULSE IRREGULARITY *

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Heart failure seems a subject so trite that to discuss just what is meant by it would appear a superfluity. Nevertheless, for a proper judgment of what is to follow, a clear understanding of what should be meant by the term must be postulated. For this purpose, Alfred Cohn's conception appears most fitting, i. e., a heart fails when it can no longer support an individual in comfort at the particular level of life at which he attempts to live. At the outset then, I should like to have it distinctly understood that this paper is meant to deal only with late cases of heart failure, or in terms of the definition, those cases in which the heart fails to support the individual in comfort at the lowest level of activity, i. e., in bed. These, of course, are the cases which come to our hospital services.

HEART DISEASE AND HEART FAILURE

A careful, and at one time intensive, observation of these patients in an exclusive cardiac ward impressed me with the fact that frequently these patients are being managed with an incorrect attitude and that students are, on occasions, being taught theories that do not square with the actual state of affairs. I refer particularly to the identification of heart disease with heart failure. Sir James Mackenzie showed many years ago that the crux of the situation in heart disease lay in the function of the myocardium; and the estimation of its ability to perform work is the main problem in the study of the heart in the living. This, of course, is the function of the myocardium in general; but it hardly needs elaborating here that this should sometimes be expressed in terms of its detailed properties, such as irritability, contractibility or conductivity, for the organ may fail in one or more of these and yet be sound in the remainder. Furthermore, it should be well understood that the heart can fail in its functions from structural change, but that this is not always true. It is important, consequently, to conceive of change in structure being important only so far as it affects function, and therefore the rightfully growing conviction that a meticulous attention to murmurs means going off at a tangent. I should like to emphasize that heart disease does not imply heart failure, and that myocarditis does not necessarily involve "decompensation."

It seems important, therefore, to be able to distinguish not only what actually is, but what is not heart failure, though it is often regarded as such because of the identity of symptoms that are frequently present. Mackenzie, again, dwells with persistence on the importance of symptoms and their interpretation as the solution of the problem of the detection of early disease. We learned quickly in

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* Read before the Section on Practice of Medicine at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

our study that such a line of attack would be of no avail in our analysis, chiefly because heart failure as a rule occurs late in heart disease and, further, because the incidence of certain objective findings, without which we were unwilling to predicate heart failure, preceded or synchronized with the appearance of symptoms. We then turned our attention to the acting organ itself and its extensions (blood vessels), and along these lines we found much more fruitful result.

RHYTHM IN DISEASES OF THE HEART

Ten years ago, it was my privilege to spend a few months in charge, as an extern, of one of Mackenzie's cardiac wards. This was just at the time that Thomas Lewis was working out the problem of auricular fibrillation, and it was found in our ward that all the cases of classical heart failure presented auricular fibrillation. In retrospect, it grew on me that I had not seen in those wards a case of heart failure presenting normal rhythm, and this was impressed on me all the more because I had seen many cases of heart disease other than failure. These had shown either normal rhythms or abnormal ones different from auricular fibrillation, such as tachycardias, bradycardias, extrasystoles and blocks. In a desultory way, I inquired into the cases that came to my notice in private and in a general medical hospital service. These cases all showed the rhythm of auricular fibrillation, and Mackenzie, Lewis, Hay and others wrote of it as a thing taken for granted, that the majority of cases of heart failure show auricular fibrillation, placing the figure as high as 80 per cent.

Led by the experience of those who had studied best and most, and fortified by even the small number of observations I had made myself, the attitude grew of wanting further observation along extracardiac lines in a patient whose symptoms could have been those of heart failure, but in whom examination of the heart itself and the pulse showed no abnormality in rhythm. Parenthetically, it should be stated here that in speaking of rhythm the term is used in a larger sense than that of time only. Variations in pulse amplitude, for the purposes of this paper, will be spoken of as arrythmia, though such use may be inexact in the true sense of the word.

CASE GROUPS

A study was thereupon undertaken for the purpose of attempting to find means to distinguish between true and apparent heart failure. A ward of eight patients was shunted off from the general medical service, and run to capacity for a period of six months, a short time and small number of patients, to be sure, but enough to give some interesting observations, and perhaps helpful suggestions for further study.

The patients could be readily classified into four groups.

1. Those who, without question, were suffering from heart disease other than failure; paroxysmal tachycardia, heart block, extrasystolic irregularities, etc.
2. The out and out cases of heart failure.
3. The so-called cardiorenal cases.
4. Patients presenting edema, cyanosis and dyspnea, and showing no nephritis, tuberculosis, cirrhosis or other usual causes of this syndrome, and who were ordinarily classified as suffering from heart failure, because no other cause for these findings had been elicited, in other words diagnosed as heart failure by elimination.

As far as the purposes of this paper go, Group 1 needs no discussion.

EDEMA IN TRUE CASES OF HEART FAILURE

Group 2 was interesting and striking. Every patient except one in this group presented auricular fibrillation, the exception showing auricular flutter. As was to be expected this group was the largest. In studying these patients, a striking and curious phenomenon was noted in the part edema played in their progress. I can recall particularly an occasion when in two adjoining beds there were patients with uncomplicated heart failure showing auricular fibrillation neither presenting the findings of any possible nephritic complication. Both patients presented marked dyspnea and cyanosis; one had an extreme edema as high as his shoulders, the other none at all.

Wondering, we attempted to find some means of physical or instrumental examination which could account for thus. It was quickly seen that by no means all, in fact less than half, the patients with uncomplicated heart failure presented edema. Naturally, the presence of an accompanying nephritis or cirrhosis of the liver would have satisfied us as to the cause of the edema. Accordingly, it followed that our previous ideas of back pressure, slowing of the blood current and consequent congestion being the cause of edema in heart failure must be untrue. Methods of examination as far as we were equipped revealing no solution, a reasonable hypothesis was that in the chemistry of the blood and respiration might be found the answer, and to undertake this study we had neither time nor training.

We did not have the idea that this conception was in any way original. Thomas Lewis had written briefly on the subject, and with a co-worker had been able to isolate a volatile acid in some cases of dyspnea. Their article is most suggestive. Later in this country, Edsall and his assistants have been working along these lines, and facts are accumulating to show that we have been quite at fault in considering edema in heart failure to be dependent on back pressure, or slowing of the blood current from a failing myocardium. It seems apparent that in some cases it is, but that in as many it is not.

Along this line another striking observation was noted. In at least two cases that I can recall, it was most extraordinary, as the heart failure progressed day by day to a fatal conclusion, to watch the edema diminish and finally to have the patient die entirely without it, while it had been markedly present when the patient had been doing fairly well. On the other hand, other patients with apparently the same degree of heart failure would progress to death with an increasing and extreme anasarca. Prospects are encouraging that in the next few years some one will explain these phenomena, probably along the lines indicated above.

ABSENCE OF HEART FAILURE IN GROUP 3

Group 3, the "cardiorenal" cases, interested us exceedingly because at the outset we had the notion that the term had been loosely used. We speculated as to what part of these patients' illness was cardiac, how much renal, and, if there was a real mixture, by what means the amount of each could be estimated. Into this group we put the cases which for years had been cataloged as of this variety. These were the patients with chronic nephritis, presenting marked edema particularly of the extremities, cyanosis, dyspnea, usually

a rapid pulse, high blood pressure, often a mitral insufficiency, an hypertrophied heart and sclerotic arteries.

It was in one way surprising to find, after a careful study of these cases, no justification for considering them cardiac in the sense that they were suffering from heart failure. They are frequently misjudged in their course, and the edema, dyspnea and rapid pulse which frequently arise in the course of their nephritis are too often mistaken as signals of a failing myocardium, and mishandled accordingly.

I should not like the impression to arise from what I am about to say that I am of the opinion that necropsy is of much help in proving or disproving the existence of heart failure. This can be estimated only in terms of function, and estimation can be made only in the living. Still, I think we will all agree from experience that a heart which has failed utterly from chronic heart disease does often at necropsy show gross and microscopic changes so vast as to corroborate, if not actually confirm, the diagnosis. With this in mind, it was striking to find, in many if not all of the "cardiorenal" cases, the expected hypertrophied heart, firm, of good color, and showing in gross and under the lens but little myocardial change. The conclusion that these patients had but little heart failure was arrived at before necropsy supported the findings. We finally became aware at the close of the study of these cases that rather than dealing with an element of heart failure, we were dealing with the disease nephritis, in which the one organ *par excellence* that stood out as not failing, but on the contrary working like a Trojan and even overacting, not to say "compensating," was the heart.

This does not mean to indicate that it is one of my purposes here to imply that chronic nephritis is seldom complicated by heart failure. Indeed, it is; but that group of cases, the actual "cardiorenal" ones, all presented auricular fibrillation. These patients suffered for the most part from the type of the disease due to infection early in life, in whose history the infection could easily be traced, as tonsilitis, rheumatic fever or chorea followed by mitral disease, and finally nephritis and auricular fibrillation. It is the latter type of patient who, in the well worn discussion over "cardiorenal" cases, is "primarily cardiac," and of the first named group which is so often spoken of as "primarily renal." The distinction is necessarily of great value from the point of view of management. It does not seem so important to decide which element preceded, but rather to express conditions by saying that one group has heart failure with the nephritis, and the other has not.

CASES DIAGNOSED BY ELIMINATION

Group 4 interested us most of all, and tempts me to go ahead of the story by speaking at this point of standards without which we were averse to predicating heart failure. The reason for this is that had these standards been applied, a sizeable number of these patients would not have suffered from the error of being classified as cardiac failure. This group readily subdivides itself into two heads, first those patients presenting what I should like to speak of as the cardiac trilogy—edema, cyanosis, and dyspnea—who frequently are cataloged as suffering from heart failure though distinctly from something else. It must be evident that the true diagnosis in this group is elusive, and revealed only after most careful study, and, frequently, a lapse of considerable time. In one of the series this was nearly one year.

REPORT OF CASE

History.—An Italian gardener, aged about 65, single, entered the University of California service in the San Francisco Hospital, Feb. 24, 1920, complaining of "pain in the heart" (pointing indefinitely to the precordium). Other than having had what he called malaria ten years before, there was nothing of note in his family or past history, except the denial of venereal history. His present illness he dated from about a year before admission, when he had "caught cold," coughing almost incessantly for three months, and raising some whitish sputum. He had had no night sweats. At about the same time, he had a dull, constant pain in the lower abdomen. About four months previous to admission, he had noted some pain, dull and aching, just below the sternum. It was relieved by eating, coming on one hour after food was taken. There was much belching, but no nausea or vomiting. Occasionally he had noted some bright red blood in small amount in the stool, but the stools had never been tarry.

The patient laid much more stress on the dyspnea, which had occurred on the slightest exertion for the last five or six months, and, particularly, on the swelling of the legs which had been present in marked degree for two or three months, and was still present on admission. One morning five months previously, he awoke and found himself unable to talk. He knew what he wanted to say, but realized that he was merely mumbling. He had no pain or paresis of which he was aware.

Examination.—The patient was well developed, with no emaciation of cachexia, but having typical "mitral facies," i. e., he was markedly cyanotic, moderately dyspneic, and had a rather advanced edema of the lower extremities. Other than a slight inequality of the pupils, the eyes were normal. Oral hygiene was extremely poor. There were small, shotty glands in both cervical posterior triangles, and both inguinal regions. The heart on inspection showed nothing abnormal, and, on percussion, was about normal size, the right border apparently just outside the sternum. The sounds were quite faint, but there was a distinct systolic murmur to be heard at the apex and just a little inside, but not in the axilla. The pulse was slow (68), the systolic pressure 150; no irregularity or abnormality was shown either to the finger or on a sphygmogram, and the radials felt of a medium amount of thickness. The lungs showed nothing to be noted here. The liver was distinctly felt, about 6 cm. below the costal margin in the right mammilary line. It was fairly hard, but not nodular.

Laboratory Findings.—These were for the most part unenlightening; urine normal: phenolsulphonephthalein, 55 per cent. in two hours; Wassermann test negative; stool normal and showing no gross or occult blood. Fractional gastric analysis was not normal, showing microscopic blood, the absence of ferments, and the presence of a large amount of mucus. The total acidity reached 14 in one hour and forty-five minutes, and no free hydrochloric acid was found. (These findings were discussed but dismissed, because much stress is not laid on occult blood brought up through the tube, and our wards at that time contained many patients with chronic disease of various kinds, showing an absence of free hydrochloric acid.) Gastro-intestinal roentgen-ray examination at this time revealed nothing abnormal.

Diagnosis.—Considerable discussion as to diagnosis ensued among the members of the staff. It is difficult to appreciate, from the printed word, the picture of heart failure which this man presented. His cyanosis, labored breathing and swollen extremities were so typical that most who saw him diagnosed heart failure at once and regarded it as extraordinary that it should be doubted. Nevertheless, it was doubted by a striking minority, who claimed that it was not justifiable to diagnose heart failure, in the absence of other findings, to explain dyspnea, cyanosis and edema together: that heart failure is to be diagnosed by positive findings in the heart and pulse, not by a process of philosophy. The minority claimed the privilege of laying the burden of proof on the affirmative, and ventured to insist that no diagnosis was warrantable at that time. The future, it was asserted, would bring forth evidence

for saying what was the matter with the patient, but for the present it was considered feeble clinical medicine to diagnose heart failure for want of something more probable. Further attention was called to the remarkable behavior of the edema in this patient, in that it would disappear when he was up and about the ward, and reappear when he remained in bed—a truly paradoxical deportment for a classical cardiac edema.

Subsequent History.—We kept the patient with us for three months, waiting for something to happen that would enlighten us. His general condition improved without any other change, so he was discharged to the Relief Home, where he worked as a gardener, and here again it is to be noted that while at work his edema was absent. He returned to us about six weeks later with an intercurrent bronchopneumonia, was discharged once more, and then returned to us after an interval of six months with an entirely different picture. This time he was plainly critically ill, complaining of "dropsy" and obstinate vomiting. He showed an extreme edema of the lower extremities, and an enormous ascites. His cardiac examination and pulse were as before, the pressure remaining the same. After tapping the abdomen, it was easy to palpate a large epigastric nodular mass fulfilling the characteristics of a stomach tumor, and through the fluoroscope this was confirmed beyond question. Gastric contents were characteristic of carcinoma of the stomach. Examination of the ascitic fluid revealed many large cells undergoing division, which we took to be tumor cells. After a month's downhill course, the patient died the typical death of carcinoma of the stomach, with obstinate and incessant vomiting, toxemia and inanition, by this time not at all resembling a patient with heart failure.

Necropsy.—A most extensive carcinoma of the stomach was found, with extensions or metastases on the peritoneal surface. The heart was normal in size, showed no striking abnormality, either microscopic or gross, not even the mitral insufficiency which had been assumed because of the systolic murmur.

COMMENT

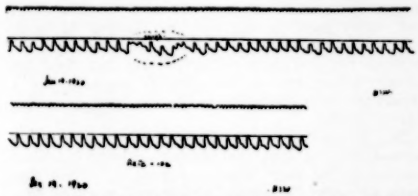
Looking at this case in retrospect, it would be impossible to say what caused the edema unless it was of a chemical nature. Speculation on this point would be fruitless just now, but the important point is that it could not have been from heart failure. This statement seems warranted from studies made during life, when the detailed analysis of the heart's function showed no abnormality (unless some one would care to put the cart before the horse and argue that cyanosis, edema and dyspnea in themselves are sufficient evidence of cardiac abnormality, which it is the very purpose of this paper to dispute), and after death, when we could acquit it of structural disease.

PATIENTS WITH APPARENTLY UNAFFECTED PULSE

The second division of Group 4 consists of the smallest number of cases, but the most puzzling of all. These are the cases which present the usual cardiac symptoms in a degree more marked than any of the other cases, particularly the dyspnea and cyanosis, with an absence often of edema. They show no nephritis, and the blood pressure remains normal, or even a little high, to the end. The pulse is rapid, around 110, and to the palpating finger betrays no irregularity; but the most striking feature of the examination is the presence of an enormous heart, a cor bovinum, with no valvular insufficiency. These retrograde, with the typical course of a patient with heart failure, and with apparently no evidence in the pulse of such a condition being present. These cases come to the necropsy table showing nothing more enlightening than they did before, revealing this enormous organ showing true hypertrophied muscle fiber, but no evidence of myocardial disease, unless hypertrophy itself be considered such.

These cases, few as they are, give pause for real reflection, and I was given to wonder whether they really were heart failure, or whether the heart had not hypertrophied in response to a call outside itself. Progress in their solution seemed to come to an insuperable obstacle, until finally, in three of these cases, it was possible to elicit evidence, in the pulse itself, of disordered action of the heart. This is the evidence of which I have spoken in the title as a hitherto emphasized form of arrythmia.

As has been stated earlier in this paper, there are those who might be captious about using the word arrythmia in describing an abnormality in the heart's mechanism other than disturbance in the time mechanism. For those I should be willing to discard the word and speak merely of an abnormal phenomenon, for disturbance in time mechanism it is not. The important and curious feature of the abnormal pulse which was noted in cases of the last group, is that the time is quite regular, but the volume or amplitude at any rate is quite irregular. We speak of the pulse of auricular fibrillation as being the perpetually irregular pulse, showing irregularity in both time and amplitude; but the pulse noted in these cases, all of whose auricles were beating in ordered sequence, was perpetually irregular only in amplitude.



Tracing showing persistence of irregularity in volume of each beat, not so marked as the day before. Decided increase in this irregularity following cough.

The interpretation of this phenomenon can only be one thing: an impairment of the function of contractility, to an extreme degree; in fact, the most extreme degree possible short of failure to contract at all. I dwell on this form of pulse because I do not recall its having been emphasized previously. Pulsus alternans, which is a common and simple form, we all know; but this perpetual dissimilarity in the size of ventricular systole must mean an impairment of contractility even more serious.

CONCLUSIONS

It is to be hoped that this paper has not given too much the impression of an attempt at new dogma or even dogma at all. It merely tries to chronicle my experience from an intensive clinical study; and that experience has shown me that chronic late heart failure does not exist without actual objective evidence in the heart and pulse. I consider the diagnosis of heart failure one to be approached with proper respect, and do not deem making it merely from the presence of dyspnea, cyanosis and edema, proper respect. I demand the eliciting of such evidence as change in the size of the organ, alteration in the character of the sounds, abnormality in pulse volume and blood pressure, disturbance in time mechanism, such as auricular fibrillation or flutter, extrasystoles, pulsus alternans,

block, or even permanent irregularity in amplitude. It seems superfluous to state that not all these are demanded or even many of them togethter, but they are cited as the kind of evidence which seems valid.

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ABSTRACT OF DISCUSSION

DR. PAUL D. WHITE, Boston: If I were asked to interpret this radial or brachial tracing I should interpret the top tracing as a bigeminal pulse due to premature contractions, every second beat; the small beats, which are marked, come, if anything, a little early, and the criterion of alternation of pulse must be, if not a regular pulse, usually with such small beats as these, a delay of the weaker beats. Probably, in the first tracing, there was a pseudo-alternation, the small beats being due to premature contractions. In the second tracing, as Dr. Wiel has said, there is a variation in the force of the beats occurring in a wavelike rhythm. We must know the respiratory rate before we can say that there is not a variation due to inspiratory and expiratory changes in pressure. We know that in inspiration there is an increase in pressure, and in expiration a decrease. The pulsus paradoxicus gives an increase in pressure in expiration. Of course, I cannot be sure of my interpretation without a respiratory tracing taken simultaneously, but because of the wavelike variation, I should say that this is a respiratory variation. In the third strip I should think that the same explanation might hold. The irregularity which is most marked between the dotted lines, as Dr. Wiel has said, is due to the coughing. At times I think interpolated premature contractions have been diagnosed by some people when, as a matter of fact, three were artefacts (such as hiccup). Following this coughing there is an accentuation of the same irregularity in force as seen in the second strip. I do not think that we can draw any conclusions from these tracings as to the condition of the myocardium. It is well known that a heart may be very irritable without being seriously diseased, and all we can say is that we have evidence of irritability or irritation of the myocardium without serious disease. If one looks over a great many tracings, whether normal or abnormal, one will find many similar to these.

DR. WILLIAM D. REID, Boston: In any study of heart failure one should not be satisfied with that as the diagnosis but should think of the type of the heart with which one is dealing. We hear a great deal about the lack of wisdom in diagnosing heart disease purely on the basis of the structural lesions present. Most men now agree to that. The same statement holds with regard to diagnosis of heart failure and being satisfied with this functional diagnosis and not trying to judge whether we are dealing with a rheumatic, a syphilitic or an arteriosclerotic heart.

DR. HARRY I. WIEL, San Francisco: I thought I had made it clear that the reproductions shown were not exhibited as conclusive but were given as an example of the sort of thing I mean. As regards the irregularity being respiratory in character, it was definitely not, because the patient from whom these tracings were taken did show other irregularities which were definitely in relation to respiration. Studies of these irregularities which were different were made, but were not touched on here as they have no relation to the subject.

Increase of Child Labor.—According to the statistics collected by the National Child Labor Committee, more children left school to go to work in 1920 in many industrial centers than in 1919. Fourteen states report an increase in child labor during the first six or eight months of 1920. In New York City 5,283 more children applied for work permits in the first six months of 1920 than in the corresponding period of 1919, but in the third quarter of the year there was a decrease in applications, so that the total net increase was only 2,353. In Baltimore County, Maryland, up to Oct. 31, 1920, there were 4,064 more applications for work permits than in the first ten months of 1919; during the summer months there was a reported increase of 13,000 in Chicago, and in Minnesota the increase was 193 per cent. over 1915.

A STUDY OF TROPICAL SPRUE, OR PSILOSIS *

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The papers of Dr. E. J. Wood,[1] and the discussion which followed his last report, before this section in 1919, leave no doubt that tropical sprue, or psilosis (as it would seem preferable to term the disease, both for brevity and avoidance of the inevitable confusion resulting from the use of the common title), occurs sporadically among our own people in persons who have never been out of the country or in the tropics. Nevertheless, the disease is known to most of us as it is brought back by those who have spent some years in foreign lands, especially in the tropics. The thirteen patients whom we have had opportunity to study in the Presbyterian Hospital during the last ten years have returned from various countries; seven from China, two from the Philippines, two from Porto Rico, one from Ceylon and one from Korea. From the literature of the disease, it is evidently frequent in Korea, and not uncommon in North China. The common title is therefore as faulty as that of the famous Holy Roman Empire, which is declared to have been neither holy nor Roman nor an empire. "Tropical sprue" may be found from Ceylon to Northern Korea, from Porto Rico to New Hampshire. It is surely not tropical; nor is it sprue.

Likewise, it had long been held that psilosis occurred only in Europeans or Americans resident in the tropics, not in the native races. The researches of Bahr in Ceylon prove beyond doubt that this is not true, but that the natives are frequently affected. Our cases, however, have followed the traditional rule in that the patients were all Americans who had spent some years in foreign lands. Three were women, ten men, their ages varying from 37 to 57 years. Their periods of stay in foreign parts before developing symptoms varied from two to thirty years. It is instructive to note that two of them returned to this country in good health and first noted symptoms of the disorder four months after their return. In another patient, not included in this series, the disease developed two years after return from Porto Rico, and while living under highly favorable conditions on Long Island. Bahr cites the case of an Englishman who first developed symptoms seven years after his repatriation, and of another in whose case seventeen years elapsed between the sojourn in the tropics and the onset of the disease.

Two of our patients were husband and wife, both developing the disease within a few months, after twenty-four years' residence in China.

Bahr cites a number of cases in which the disease developed, in persons closely associated, as though from a common cause, or from one to the other.

THEORIES AS TO ORIGIN OF DISEASE

Theories as to the causation of the disease are numerous. Effects of tropical climate, limitations of diet

* From the Medical Service of the Presbyterian Hospital, New York.
* Read before the Section on Practice of Medicine at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Wood, E. J.: The Occurrence of Sprue in the United States, Am. J. M. Sc. **110**:692 (Nov.) 1915; Tr. Am. A. Phys. **30**:505, 1915; The Recognition of Tropical Sprue in the United States, J. A. M. A. **73**:165 (July 19) 1919

resulting from residence in the tropics, intestinal parasites, bacterial infection, or infection by yeasts, have all been suggested. Only the last theory is supported by any scientific evidence.

As the result of his careful study of the disease, Bahr is inclined to the belief that it is produced by the general infection of the alimentary tract by yeasts, although he recognizes that the proposition is not yet proved and that there are objections to it.

So far as the classification of the yeast is concerned, Bahr says:

> There is no evidence in favor of regarding the sprue yeast fungus as being otherwise than identical with the thrush fungus, *Monilia albicans*, an organism possessing a very low pathogenic power; but it is possible that under certain unknown conditions, more or less peculiar to the tropics, this power may become greatly augmented.

His predisposition to the monilia theory rests largely on his belief that psilosis is a tropical disease, tropical conditions being especially favorable to the growth of the fungi. The fact that it may be found in northern Korea, and even New Hampshire, takes all force from that argument.

Ashford in Porto Rico finds a yeast infection common in psilosis, but insists that it is not *Monilia albicans* but a hitherto unrecognized species which he terms *Monilia X*. Bahr's feeding experiments with the monilia proved harmless. Ashford in two experiments observed a stomatitis in animals fed *Monilia X*, and in several instances a protracted diarrhea.

Bahr's identification of the yeast found in psilosis with *Monilia albicans* adds to the confusion regarding the nature of the disease. If correct, that would mean that infantile sprue and psilosis are produced by the same organism, and should, therefore, be one and the same disease. This is, I think, quite impossible. There is no resemblance whatever between the mouth lesions (practically the only ones known), of the infantile sprue produced by *Monilia albicans* and those of psilosis. Thrush is characterized by the raised white dots produced by colonies of the infecting fungi, which may fuse into a wide-spreading pellicle, covering tongue and buccal mucous membranes in severe cases.

The mouth lesions in psilosis are of considerable variety, but none of them in any respect resemble the picture produced by *Monilia albicans*. The lesions that we have seen have been only of three types: (1) a patchy erythema, especially of the edge of the tongue; (2) minute ulcers indistinguishable from the lesions of aphthous stomatitis in childhood (canker sores), and (3) smooth, shiny atrophy, apparently a sequel of the previous lesions. None of them have the slightest resemblance to *Monilia albicans*, and from none of the ulcers have we ever been able to obtain monilia of any type.

RELATION OF MONILIA TO PSILOSIS

Assuming the correctness of the observations of both Bahr and Ashford, the probability is that the organisms obtained, not being identical, have nothing to do with the causation of the disease, but are chance invaders of tissue of lowered vitality.

I do not believe that the specific organism causing psilosis has yet been found. In none of the mouth lesions have we been able to find *Monilia albicans*. Only once in this series of thirteen patients, one of whom was in the hospital on two occasions, and another on three, has monilia been found in the stools, and then only on a single occasion, though search was repeatedly made for the organism. In two of our patients (Cases 8 and 9), monilia identified as *Monilia albicans* was found in the Mayo Clinic, prior to the entrance of the patients in the Presbyterian Hospital. In neither could they be found when the patients came under our observation.

The stools in one patient were thoroughly studied by the bacteriologic staff of the Columbia University College of Physicians and Surgeons, under the direction of Dr. Hans Zinsser with negative results so far as monilia or any unusual bacteria were concerned. This patient finally succumbed, the clinical course and postmortem findings leaving no question of the nature of the disease. At my request Dr. Russell L. Cecil has recently made an exhaustive study of the organisms found in the stools in another patient, a typical case originating in Porto Rico. Monilia was not found and, still more remarkable, nothing whatever abnormal was noted in the bacterial flora of the intestine. Two weeks later the study was repeated with the same results.

So far as our observations go, the monilia is certainly not present in the cases of psilosis presenting themselves for study in New York City, nor has the most careful bacteriologic study of the stools shown any abnormalities worthy of note.

PATHOLOGIC ANATOMY

Although the studies of the postmortem conditions found in sprue are not many, yet there is sufficient evidence to indicate that the changes found are comparatively few. Thinning of the epithelium of the tongue and various parts of the gastro-intestinal tract, with areas of denudation in places, has been observed. Thinning especially of the wall of the small intestine has been thought by some to be characteristic, but Bahr does not so regard it. The latter finds evidences of chronic inflammatory changes of moderate grade throughout the small and large intestine, some fatty infiltration of the liver, and hyaline areas in the spleen, both small and large, the latter resembling the so-called Russell's bodies. He is inclined to regard these hyaline areas of the spleen as characteristic of psilosis, having failed to find them in other conditions. Granting this, the lesion fails to throw any light on the nature of the disease or the grave disturbances accompanying it.

One of our cases proved fatal. The necropsy revealed, apart from the wasting characteristic of the disease, a variety of lesions unrelated to the psilosis, including an aortitis of the syphilitic type (Wassermann reaction negative), chronic cardiac valvular disease and hypertrophy of the heart. There was a perforation of the appendix and diffuse peritonitis, which apparently developed in the last twenty-four hours, and was overlooked owing to the previous dilatation of the stomach, with symptoms of tetany, which will be dealt with later. The only lesion bearing on the clinical condition was a chronic enteritis of the mucous type. It was notable that the stomach, although enormously dilated, showed only hemorrhages into the mucous membrane, and no other microscopic changes. An anacidity was found during life. The pancreas was normal both in appearance and in microscopic section.

SYMPTOMS

The clinical picture of psilosis is now well established. The combination of sore mouth; diarrhea, char-

acterized by the passage of from one to four bulky, light-colored, semifluid or grumous stools, containing much gas; emaciation, anemia and exhaustion, renders it easy to recognize the typical case on clinical grounds alone. Doubtless there are many poorly developed cases that pass entirely unrecognized. A few facts which have impressed us may be noted. The soreness of the mouth is striking in some cases, but may be absent, and the mouth may remain entirely normal, as occurred in four of our thirteen patients. Bahr observes that the mouth lesions are by no means constant.

Nausea and vomiting may be pronounced in severe cases, but as a rule there seems little gastric disturbance. The abdominal symptoms usually engross attention. The chief disturbance is described as a diarrhea; but the increase in the number of stools is slight, the total not exceeding three or four a day. One of our patients had periods of diarrhea in which from ten to fifteen discharges occurred during the twenty-four hours. In another case, the total reached eight, in a third six, but none of the ten remaining exceeded four, and in some cases there were but one or two stools a day.

The gaseous distention and the sensation of the "popping of gas" within the abdomen are much emphasized by the patients. Exquisite sensitiveness of the abdomen may be present through many months. Patterson of Seoul, Korea, reports operating on two patients under the mistaken diagnosis of appendicitis.

The anxiety with which the patients watch their stools, and the depression and exhaustion which often follow the passage of a characteristic stool, are very striking features of the disease.

Loss of weight is progressive and, when the disease has existed many months, becomes a matter of vital import. From 20 to 30 pounds loss was commonly reported, and in one instance a patient, weighing at his best 160 pounds, had lost 60 pounds. Debility is usually marked, and in severe cases profound exhaustion ensues.

RESULTS OF EXAMINATION

The emaciation and debility are, as a rule, evident at a glance. Anemia may be absent or very marked. The skin is often loose and wrinkled. The mouth shows the lesions already described, patches of erythema on the tip or edges of the tongue, and "canker" sores on either the tongue or the buccal mucous membrane; sometimes the whole tongue is smooth and fissured. The abdomen is usually protuberant and tympanitic; sometimes, as already noted, it is exquisitely tender. We have never noted the shrinkage in liver dulness on which stress is put by some writers. The liver shares the loss of all the viscera, but this is not great enough to obliterate the liver dulness. Hemorrhoids and relaxation of the rectal mucosa with prolapse may complicate the severer cases. Protoscopic examination was made in nine of our thirteen cases. There is no characteristic picture. In some of our cases the mucous membrane was found normal, in others pale; in several, it was the color of raw beef. In only two were granular areas suggesting ulceration (minute) seen, while an area of definite necrosis was observed in only one instance. As a matter of fact, one learns to attach more significance to the characters of the fecal contents than to the appearance of the bowel.

CLINICAL TESTS

The clinical investigation of our cases has been a matter of interest.

The saliva, we have not studied. Van der Scheer found the saliva alkaline to litmus in the early stages, but acid later. Bahr found a markedly acid reaction in all cases examined, particularly the advanced ones.

Gastric Contents.—We have records of twelve gastric analyses in eleven patients. Six of the twelve showed a total lack of free hydrochloric acid; another showed low values throughout a serial test, while five gave practically normal readings. One patient gave normal findings on the first test, in 1912, while in a second attack, in 1919, the free acid was absent in the initial reading of a serial test, but gradually mounted to 36 at the end of two hours. In other respects the gastric contents after an Ewald test appeared normal. There was no excess of mucus, and no blood.

The Stools.—The macroscopic appearance of the stools is often characteristic. The bulk is excessive; they are pale gray and grumous, with many large bubbles of gas intermingled; the odor is peculiar, rarely foul. It must be noted, however, that many variations occur, often in a puzzling manner. Not infrequently the stools become of normal consistency and appearance for a time, only to present the old, alarming characters a little later, without change in the patient's mode of life or diet to explain them. These variations, coupled with those that normally occur in consequence of variations in diet, drink or exercise, cause notable changes in the appearance and composition of the stools at different times, and render it difficult to establish accurate standards or interpret our attempts at exact chemical analysis. Thus, I find in our records notations of color reading through pale, tan, yellow, and green to brown. The lack of color in the psilotic stool has been supposed to be due to the absence of bile pigments, which in turn was ascribed to atrophy of the liver.

Blyth has, however, shown that the bile pigments are really present but in the form of a colorless compound, known as leuko-urobilin. Walker refers this reduction of the normal bile pigments to absence of the pancreatic juice, and says that it may appear in such conditions as carcinoma of the pancreas. Mayo Robson states that the stools in chronic pancreatitis may have the same characters as in psilosis.

A second factor in the light color of the stools is unquestionably the presence of an unusual amount of fat in the form of both neutral fat and fatty acids. The presence of an excess of free fat and crystals of the fatty acids may be demonstrated in many of the stools by microscopic examination. Chemical demonstration of the same facts is beset with practical difficulties. Variations in the amount of fat in the diet, in the absorptive power of the individual, and in exfoliation of intestinal epithelium from which part of the fat found in the feces is derived, all tend to modify the results of chemical analyses of the stools and render their interpretation uncertain. As Wood observes, dependable findings can be had only by exact chemical analyses of the foods taken, and of the excreta, over a period of three or four days. Thus far we have not found it practicable to carry out such investigations with our patients. Some suggestive results have, however, been obtained by occasional chemical studies of the stools in typical cases.

According to Adolf Schmidt, under normal conditions the total fat in the dried feces does not exceed 20 per cent. by weight In four of our patients careful analyses, carried out by Miss Selma Granat, showed total fat varying from 25 to 48 per cent. of the dried feces, a decided excess. The differentiation of the total fat into neutral fat and fatty acids showed the neutral fat to constitute from 11 to 35 per cent. of the total, an average of 24 per cent., and the fatty acids from 65 to 89 per cent., an average of 75 per cent. So far as the fragmentary results go, they suggest that there is an excess of fat in the stools of these patients, not so much from the absence of a fat-splitting ferment, the percentages given being within normal limits, but from an impairment of the power to absorb the fat contained in the food. In another patient, however, analysis showed a neutral fat of 60 per cent. of the total, the fatty acids being but 40 per cent., a result suggesting a decided loss of power to split the fat. It is of interest to note at this point that in the postmortem examinations thus far recorded, as indeed in the patient in whom this last result was obtained, the pancreas showed no notable changes. On the other hand, clinical experience indicates that the administration of pancreatic extract is in some patients highly beneficial, while in others it fails entirely of definite effect.

It has already been noted that in our thirteen patients the monilia was found but once, and that only in a single examination; while in two typical cases, the most thorough bacteriologic examinations failed to show any variation from normal standards.

Fermentation Tests.—Although excessive gaseous distention is a notable feature of the clinical picture, and in typical stools the big bubbles of gas are readily visible, fermentation tests have yielded but indifferent results. Doubtless the discrepancy is due in some way to imperfections in the method of examination.

The Blood.—Severe secondary anemia has been a striking feature of our cases. In eight of the sixteen studies (on thirteen patients) the hemoglobin was 70 per cent. or less, the lowest record being 21 per cent. The red cell counts were correspondingly low, but in none sufficient to give an index much above 1. In none were nucleated cells found, so that while in several pernicious anemia was suggested, it was easily excluded on the basis of the blood findings, and the other features of the condition. Wassermann reactions were negative in all cases, as already noted, even in the fatal case in which an aortitis of syphilitic type was found at necropsy. Blood urea was found normal in two instances, and slightly above normal in one. The carbon dioxid content was likewise normal in two cases. Observations of the calcium content of the blood with an accompanying increase in carbon dioxid will be reported in connection with the cases of tetany.

Pancreatic Ferments.—No little interest has attached to tests for the presence of pancreatic ferments in the stools. They have been made in the majority of our patients. Trypsin was absent in four cases, and diminished in the fifth, but was present in apparently normal quantity in three. Amylose was absent only once, diminished twice, and present in apparently normal amounts in four cases. There was no regularity about these findings, trypsin being found without amylose, and vice versa. One feels some hesitation in accepting the results of these tests or attaching significance to them.

The Urine.—Routine urinary examinations have shown no abnormalities of note.

COMPLICATIONS

In 1919, Bassett-Smith [2] reported a case of tetany in a sprue patient in the advanced stage of the disease. Reference has already been made to a similar development in one of our patients. The details of this case were published by two of our students.[3] The condition was typical tetany existing for four days, without fever until the last twenty-four hours, and without abdominal distention or rigidity; yet at necropsy a gangrenous appendix with perforation and general peritonitis was found. The patient was regarded as moribund when the temperature first rose, and the fever was looked on as the result of protracted vomiting and exhaustion. The rupture of the appendix may have occurred from the thinning of its walls, and appears to have been only the final step in the progress of a fatal disease. Repeated analyses of the blood during the period of tetany showed a blood calcium ranging from 8 to 6.5 mg. per hundred cubic centimeters, the normal being from 9 to 11 mg. Two intravenous infusions of 0.2 per cent. calcium lactate solution were given with subsequent determinations of the blood calcium. To our surprise, no material increase in the blood calcium was found. Some relief of symptoms was experienced after each infusion. Later, transfusion of blood and the intravenous administration of 800 c.c. of 0.1 per cent. calcium lactate failed of definite effect. The plasma carbon dioxid on the second day of the tetany showed 57.6 per cent. by volume.

During the past winter another of our patients, now living at some distance from New York, developed tetany with recurrent typical spasms of hands and feet, so severe as to require morphin for the relief of pain. Observations of the blood calcium, in November, December and January, gave values ranging from 7 to 6.6 mg., despite the persistent administration of calcium lactate by mouth. In January, the plasma carbon dioxid was found to be 86 per cent. by volume. In the belief that there might be relation between the alkalosis and the inability to retain calcium, the acid phosphate of sodium was administered, and later the patient was induced to take a quart of milk a day, a food which he had previously declined to take. During the recent months there has been no recurrence of the tetany, but we have had no opportunity to repeat the blood examinations, and therefore do not know whether there has been any change in the chemistry.

DIAGNOSIS

As far as we can see, the diagnosis of sprue must rest on the clinical conditions. These, as has been said, are fairly characteristic. The study of the stools is of special interest; the results reported are highly suggestive, but cannot be regarded as diagnostic.

TREATMENT

There is general agreement that treatment is dietetic, but the diets on which patients have recovered present a bewildering variety and varying composition. The one recommendation which seems to have general acceptance is that the diet must consist largely of

2. Bassett-Smith, P. W.: Lancet 1:178 (Feb. 1) 1919.
3. Barach, A. L., and Murray, D. A., Jr.: Tetany in a Case of Sprue, J. A. M. A. 74:786 (March 20) 1920.

fruit. The fame of strawberries in this relation is well known. One suspects that their virtue may lie in the restriction on total caloric intake which must result, but this is by no means clear. Bahr attaches peculiar values to the bael fruit, which he could obtain in excellent condition and in abundance in Ceylon. We have no evidence on which to advocate a particular regimen in these cases. To us, the problem has always seemed much like that presented in many cases of difficult feeding in infants, i. e., to find any food which the patient can take with comfort, adding to this easily digested foods, until a reasonable intake is secured. Experience has proved that, in doing this, starches, especially in the form of potato and bread, must be restricted, and the intake of fat in any form kept low. In other words, the diet must consist largely of fruits and protein. Following these lines, we have, as a rule, been able to secure an intake on which the patient would cease to lose, become comfortable, and be able to carry on moderate activities. Our experience leads us to doubt whether any patients with well-developed psilosis ever completely recover. Bahr's experience in Ceylon appears to show that they do, and that they remain well indefinitely.

SUBSEQUENT HISTORY OF TWO CASES

Our first patient apparently recovered completely, returned to China, and did five years' service under the old conditions without return of symptoms. He then developed pulmonary tuberculosis and was invalided home again. While under treatment for this disease, the symptoms of psilosis recurred and have thus far proved intractable. This is the patient who, during the past winter, has had tetany added to his burdens. Although at present slightly improved, he is still in a critical condition.

A second patient, who had contracted his disease in the Philippines, apparently recovered and was allowed to return after a two years' stay at home. Within eighteen months the characteristic diarrhea and exhaustion recurred, in January, 1919, and he succumbed in November of the year, with a complication of tetany and gangrenous appendicitis, as already reported. In the light of these experiences, we shall be reluctant to authorize the return to the tropics of any one who has had convincing evidences of the disease.

SUMMARY

1. Tropical sprue is not confined to the tropics, nor is it sprue.

2. The monilia has been found but once in our thirteen patients.

3. Bacteriologic examination of the stools fails to show any significant departure from normal conditions.

4. The mouth lesions are not constant. They are of the type known as aphthae in children, and do not resemble infantile sprue, in which *Monilia albicans* is regularly found.

5. Severe anemia is frequently a feature of the disease.

6. Total absence of hydrochloric acid is found in many of the gastric analyses.

7. Chemical examination of the stools shows an excess of neutral fat.

8. The pancreatic ferments may or may not be present. The pancreas in postmortem examinations is apparently normal.

9. Bacteriologic examination of the stools shows only normal bacterial forms, with no important variation from the usual percentages.

10. For the present, the diagnosis of psilosis must rest on the clinical findings.

11. Tetany occurs as a grave complication of advanced cases. A marked reduction of the calcium content of the blood is found in these cases.

12. The treatment of psilosis is largely dietetic, the diet to be adapted to the digestive powers of the individual. In patients with anacidity, dilute hydrochloric acid is indicated. Pancreatic extracts are beneficial in some cases, but fail in others.

13. Despite the favorable reports of Bahr as to the possibility of complete recovery and the subsequent health of patients who have had psilosis, our experience indicates that there is grave danger of the recurrence of the evidences of psilosis in patients who have once suffered severely from the disease. It is, therefore, doubtful whether any of these patients should be permitted to return to the conditions under which the disease developed.

32 East Sixty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. JOSEPH H. PRATT, Boston: Although sprue is still a rare disease in the United States, persons affected with it are returning from the tropics every year, especially from Porto Rico and the Orient. It is highly important that the physicians who are consulted should have some knowledge of its diagnosis and the proper treatment. I well remember my consternation when my first patient with this disease presented herself and said, "I think I have sprue and I have come to you for your opinion." I knew it was some form of tropical disease, but that was all. I know of persons invalided home with the diagnosis of sprue who have been treated so improperly on their return to this country that it was perfectly evident that the physicians who were responsible for their care did not take the trouble to look up the proper management of these cases. During the past year I have seen two patients who have wandered far and wide seeking expert advice on this disease. One of them even traveled to Porto Rico. The physicians connected with the foreign mission boards in this country should formulate a plan for giving adequate instruction to missionaries and others invalided home with this diagnosis. Provisions should be made for treatment by physicians who are familiar with sprue. The value of Manson's milk treatment is not appreciated even by many who see much of this disease; I recently saw a patient who had tried the santonin treatment, pancreatic ferments, meat diet and a bland diet, in the hands of different physicians, without success. His wife, in despair at his failure to gain on these forms of treatment, went to the Boston Medical Library and read up the literature on sprue. She chanced on Manson's monograph and followed exactly his milk treatment in every detail. Without medical aid she supervised the treatment. Immediate improvement occurred. Six months later when I examined the patient he seemed to be perfectly well.

DR. THOMAS R. BROWN, Baltimore: My experience with sprue is limited to six very severe and chronic cases, three of the patients coming from Porto Rico and three from the Philippines. I have observed that in many cases there is absence of the pancreatic ferment in the stools and in the duodenal contents. I think that that, however, represents the late stage. Gastric achylia was present in five of every six cases; but under the improvement that came there was a return to normal in three of these five cases. The other case, a very severe one, showed no change in the normal acid readings, although the symptoms were as severe in this case as in any of the others. It is rather striking how few notes one finds in the literature in regard to the changes in the

pancreas. This may be because the pancreas degenerates so quickly postmortem, especially in the tropics, and a microscopic examination is not possible. I have talked to Dr. Castellani, and he felt that there was nothing characteristic about the pancreas, but he thought that some cases seem to show chronic inflammatory changes; but this is very doubtful without microscopic examinations. On the other hand, it is an interesting finding. I have had exactly the same experience as Dr. Bovaird with regard to *Monilia psilosis*. I have not found it, in spite of the fact that my cases were diagnosed by experts and showed all the characteristics of the disease. I was interested to note that many physicians in Manila are getting satisfactory results from the use of neoarsphenamin. In one of my cases it seemed to do much good, temporarily. I feel, like Dr. Bovaird, that the last word has not been said on sprue; possibly it represents a group of diseases, and this may be the reason that there are so many suggested and in some cases successful modes of treatment. The only thing I want to suggest is that in the treatment of these very severe cases it is well to consider all the factors, the dietetic factor, etc., and my experience is that the pancreatic as well as the intestinal factor has to be considered. In fact, every factor has to be considered in order to bring about an improvement, even if a perfect cure is not to be expected.

DR. FREDERICK S. DELUE, Boston: It seems to me that we are getting needlessly alarmed over the admission of such cases into this country. If you look more carefully you will find that they are numerous at home. They are frequently overlooked because the individual with a cankerous mouth and digestive disturbances usually knows enough to take a very simple diet and so cures himself. The significant fact is that the type of diet that causes this disease in the North is essentially the tropical diet or the acidulous fruit and carbohydrate diet. I have had an interesting case in my own family. When my son married and took his wife out to my country home, my preserve cellar, which had not been used for a number of years, was opened and all sorts of preserved fruit partaken of, with the result that in a short time deep cankerous ulcers developed in the mouth with diarrhea, hemorrhoids and great prostration. A bland milk diet with sodium bicarbonate promptly cured the case. A small amount of such preserves suffices in a few days' time to bring back the trouble. I do not believe that this is a germ disease. It appears to me to be primarily an acidosis with a marked reflex factor from the continued irritation of the gastrointestinal tract, and the early recognition of the cause prevents the catarrhal condition from developing to the point of ulceration. The harmful element seems to be acid, whether acids direct, acids from fermentation of the sugars, or from splitting up of the fats. If you will try a skim milk diet, combined with sodium bicarbonate I think you will have no more difficulty.

DR. DAVID BOVAIRD, New York: The observations that were made in 1919 apparently indicated that sprue occurs sporadically in this country. I think that Dr. Pratt recalls a case coming from New Hampshire; and various other men spoke of having seen cases of sprue that had developed in the United States. The disease undoubtedly presents an interesting field for study; its nature at present is unknown. Observations have been made in regard to the gastric analyses, and the presence and absence of the pancreatic ferments, such as Dr. Brown has reported, and they are interesting and possibly important. It is a very peculiar disease when one comes to study it. The pathologic condition apparently is an atrophy of the epithelium of the alimentary tube from the tongue straight through the gastro-intestinal tract. Physiologically, the disturbance is a complete disruption of the ordinary digestive processes. But what relationship lies between these two things, the pathologic anatomy and the physiologic results, is still a mystery. So far as treatment is concerned, it is quite evident from the natural history of the disease that the great majority of these patients are destined to recover no matter what treatment is given. I think that is the only way one can interpret the extraordinary number of diets and procedures by which recovery is obtained. I have been interested in the use of arsphenamin in the Philippines. They also use emetin with reported success; and the same is true of santonin. Many drugs have been used, and most of the patients get well, but from the experience reported it is evident that some of the cases are fatal in spite of the best treatment. As to diet, it seems that the indicated diet in severe cases is skimmed milk as a starter, because it is the safest thing we can possibly use, as it puts the least burden on the digestive tract. That can be maintained for only a brief period and must be added to as conditions permit.

THE RÔLE OF FATIGUE IN THE MALNUTRITION OF CHILDREN *

BORDEN S. VEEDER, M.D.
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There has been no subject in the field of pediatrics which has attracted more attention in the last two or three years than that of malnutrition in children beyond the age of infancy. There is already a voluminous literature on the subject, and in following the literature I have been struck by the relatively slight amount of attention which has been given to the subject of fatigue, or, expressed in a different way, to the subject of rest. Usually one finds a statement that unhygienic conditions of living, poverty, overcrowding, etc., play a part in producing malnutrition and that the child must have proper hours of recreation, rest and sleep. These, however, are generally regarded as contributory factors to dietetic faults or physical defects.

For several years I have had considerable interest in a group of older children who are underweight and thin, but who, aside from this, do not present any striking pathologic picture. Physical examination fails to reveal such underlying causes as a masked juvenile type of tuberculosis, chronic gastro-intestinal indigestion, endocrine disease, postural defect, and the like. While the majority of the children come from classes in good economic circumstances, in which, theoretically at least, there has been careful supervision as to diet, clothing, etc., I have seen a number of this same type of child in the municipal welfare centers. Underlying economic factors leading to unhygienic living conditions, teeth decayed through neglect, inadequate or unbalanced diets, and the like, seemingly do not play a rôle. The simple outlining of diets and prescribing the ordinary amount of rest fail as a rule to improve the situation, although the directions are carefully carried out. At first I was inclined to regard the condition of these underweight children in the light of some hereditary trait or characteristic, but this explanation was frequently a stretch of imagination. As some of these cases came to me rather in my capacity as family physician than as consultant or clinic chief, I was able to observe carefully the daily life and habits of the children, and more and more came to the conclusion that fatigue was the basic difficulty, and treatment outlined from this viewpoint has given quick and satisfactory results as a rule.

DEFINITION OF FATIGUE

As a matter of fact, it is not easy to define just what we mean by the word fatigue. The word is

* Read before the Section on Diseases of Children at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

used today chiefly in an industrial sense, implying the overuse of certain groups of muscles, resulting from the protracted stimulation of the motor mechanism or from strained attention. In the care of the child, we use the word in a rather different sense; for there is rarely any excessive use of groups of muscles from the constant repetition of the same act nor, as a rule, is attention in a child ever concentrated on certain objects or movements for hour after hour.

The normal child spends his day in hard physical play or exercise, changing constantly from one kind to another. Period after period of physical exercise almost to the point of overexertion is followed by brief intervals or periods of rest in which restitution is rapid and complete. It is almost impossible for a child to maintain a sustained period of effort as an adult does, but the sum total of these brief periods of activity in children is seemingly much greater than is the sum total of effort in the adult. The tiring out after these intervals of play is a normal process and we cannot speak of it as fatigue in the pathologic sense; but whenever the child fails to relax sufficiently between these periods of activity, or when the long period of night rest or sleep is insufficient or broken, there is a failure on the part of nature to make up for the losses of the periods of activity. The causes of fatigue, using the word in this sense, are many and usually multiple in the individual case. Physical exercise alone is rarely ever a cause, particularly the physical exercise or supervised play which is so common today as a part of our school curriculum. The same may be said of excessive study; but if we add to these two, in normal amounts, the complex social life of the modern American child, a combination results which, in my opinion, is as important and as dangerous to the normal development of the child as any of the common well recognized physical defects. Fatigue, as we all recognize, may act as an important contributing cause in the production of malnutrition, but it seems to me that it is a causative factor of so much importance that it ranks equal with the usual dietetic errors which are so common. This importance is clearly demonstrated in the group of cases which I have mentioned, in which there is no demonstrable physical or dietetic errors, but underweight and failure to develop are striking.

Let me quote two cases from my records:

REPORT OF CASES

J., a girl, aged 12 years, thin, and some 20 per cent. underweight, was bright in school and up in her classes, interested in basket ball, tennis and skating. Rising early to walk to school, she remained there until 2 o'clock. Then came supervised play and exercise of a hard nature, but not to the point of overexertion. In addition to this, however, there were at least two or three parties a week, and the first show at the movies two or three evenings. Friday and Saturday nights there were late parties and dances. Physically strong and wiry, the child was always on the go and quite naturally under a nervous tension. There was nothing fundamental the matter with her and she was rarely sick. She was simply living a life that prevents normal development and increase in weight. The entire fault was environmental, as the family traveled the same pace, and the growing child was simply a victim of the American craze of not dropping behind her crowd.

D., aged 9 years, height 51 inches, weight 46 pounds, when first seen had made no gain in weight for a period of thirteen or fourteen months. He was of a family of considerable means, and from infancy had had most careful medical and physical supervision. He was extremely active, and interested not only in play but also in books, nature study, etc. His posture was good, his physical examination negative, except for the malnutrition. He was very sane and sensible, and considered that it was foolish to worry about him in any way; but his parents were very much worried because of his failure to gain. First overfeeding was tried without any particular success. His habits of life and bed hours were good, and he lived in the country outside of the city limits. Watching the boy over a period of time it was impressed on me that, although not at all of a nervous or neurotic temperament, he was always on a tension. Coming in from play to rest he would at once pitch into his books or studies and concentrate on them. The rest hour prescribed was not very successful. A mild exanthem forced a period of quarantine, and at once the lad began to improve. A potential "weak heart" from the scarlet fever enabled me to continue the rest cure, with exercises being added gradually until the lad was allowed all the forms of play of a normal child. The prolonged rest had put him in the habit of relaxation, and in less than a year he gained some 12 pounds, and he is continuing to gain. He is permitted to do anything that he wishes to do, with the understanding that he must continue to gain in weight, and he is held responsible for the rest which will enable him to do this.

COMMENT

These two cases illustrate how fatigue alone may be responsible for failure to gain weight and develop along normal lines. If, as in these cases, it is a basic factor, how much more important we must consider it as a contributory cause when associated with physical and dietetic causes. In these cases with multiple causes, I know of no way to allot exactly the part which each plays, except by the detailed study of the individual child.

THE QUESTION OF SLEEP

How much of a part the lack of rest plays, however, is shown in a gross way by some studies in one of our St. Louis nutrition clinics regarding sleep. The question of sleep is very closely bound up with the subject of fatigue and malnutrition. I have been asked so many times how much sleep a child of such and such an age should have, that I once looked the matter up to find whether the hours and amount advised by men who have written on the care of children agreed with my advice, and it was quite interesting to note the different views in the hours and amount of sleep advised.

Recently the London County Council issued a bulletin on this subject in response to the numerous inquiries which were made in regard to this question. Perhaps the most satisfactory advice occurs in one book which dodges the point at issue by stating that the amount of sleep required is an individual matter. While this is true, there is a minimum below which it is probably not safe to go with any child, and this sort of answer hardly satisfies the inquiring parent. It is, of course, absolutely impossible to lay down fixed hours for each age and, further, so many variables enter in, as the place of sleeping, sleeping equipment, general physical condition of the child, the amount of physical exercise or work the child performs, and the like, that latitude must be allowed and common sense used. But I believe there is a minimum, and so for my own work I have arbitrarily fixed a "minimum table," based largely on the amount of sleep of physically fit children, and in practice it has been fairly satisfactory.

In the accompanying table are given the minimum number of hours of sleep which I insist the child must take in the twenty-four hours. As a matter of fact, most children take more. But a normal, active child who takes less is on the danger line so far as normal development is concerned.

MINIMUM AMOUNT OF SLEEP

Age, Years	Hours
From 1 to 2	13
From 2 to 4	12
From 4 to 6	11
From 6 to 10	10
From 10 to 14	9

Interested in this question, we mapped out the hours of sleep of eighty malnourished children in one of our welfare centers. These children were between 6 and 12 years of age, and averaged about 9½ years. Taking the "minimum figures" quoted as a standard, we found that thirty-three of the eighty, or 40 per cent., actually spent an insufficient time in bed. When we take into consideration that, in many of these cases, sleep was more or less disturbed through overcrowding, insufficient air space, etc., lack of sleep as a contributing cause at least of malnutrition becomes apparent.

IMPRACTICABILITY OF THE FIXED SCHEDULE

There is a practical point in dealing with the undernourished child which I wish to discuss briefly, as it involves a fundamental error in treatment. A number of children have come under my observation whose day has been mapped out in hourly and semihourly divisions in the attempt to make the child take sufficient rest and limit his activities. The whole household revolves about Johnny's doing a certain thing at a certain minute and his living on a fixed, inflexible schedule. The effort to maintain the schedule in itself keeps up or aggravates the condition it was intended to relieve. A life of "Don't do this" or "Do this," to relieve tension, will be given only by a person who fails to grasp the basic elements of child psychology. The best plan is to limit at first all violent play and insist on the minimum bed schedule. As soon as the child starts to gain, he is allowed any sort of play he desires in any amount, provided the weight continues to increase. He soon learns that rest and food are essential, and in my experience the child rapidly learns to limit his activities without a constant nagging by nurse or parent.

CONCLUSIONS

It may seem to you that I am putting undue emphasis on a very simple point. But I have found so many parents, teachers, physicians and nutrition workers who have failed to grasp the importance of fatigue and rest in the physical development of the growing child that it has made a strong impression on my mind and it has seemed to me that the subject needs emphasis from the medical standpoint. Every physician knows that rest forms the sheet anchor in the treatment of nearly every disease, but few seem to grasp its importance in preventive medicine.

Further, I believe there is a big broad question involved, and that is the life of the modern American child. This complex life, with its many-sided activities which leads to fatigue is but the reflection of the environment in which the child of today is being reared. The "pace" of American life, which has created a type of nervous activity which characterizes the American wherever you find him, has been extending to the years of childhood, and we find the school child of today leading a life with his school athletics and social organizations which outdoes the life of the adult of a generation or so ago. It is a dangerous tendency from the physical standpoint. It is my belief that there is a necessity before the pediatrician of today of educating people in regard to the dangers of failing to limit the activities of the modern child. An educational movement in regard to the way the child's life should be regulated from the physical standpoint is just as necessary as the widespread propaganda of recent years in regard to food values, bathing, care of the teeth, and like subjects. If in our work with undernourished children we are to obtain results, we must consider the type of living and environment in which the child is being reared, just as much as the question of his food, and if we are to avoid the development of malnutrition, we must actively take steps to prevent the growing child from living at a tension beyond his physical capabilities.

Humboldt Building.

THE EFFECT OF POSTURE ON THE HEALTH OF THE CHILD*

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Good health is necessary for the growth and proper development of the child both physically and mentally. The puny and physically unfit child is always backward or abnormal in its mental makeup. Healthy, and even rough, play, with its accompanying contact with other developing personalities, is essential for physical upbuilding and mental growth. Any factor then which limits or prevents a child from engaging in what has been termed "the normal activities of the growing child" must be considered a menace to its health and be taken into consideration. A child may fall well within the accepted limits as to weight, height, etc., and yet be so handicapped by physical limitations that its normal activities are seriously interfered with.

That posture, which so largely determines the manner in which we use our bodies, has a very decided influence on the activity and so on the health of the growing child, will not be gainsaid, we are sure, by any one who has given this aspect of child development any thoughtful consideration. Goldthwaite, in speaking of posture and activity, says:

> To stand erect and walk and move easily, to have all parts of the body so adjusted that easy balance and graceful use may result, is to be desired for more important reasons than the esthetic. Such elements are necessary for perfect health and that we may use the body with least friction, the least expenditure of energy and with the greatest efficiency.

This was said long before the recent war brought out the fact that a considerable portion of the young men of America were unfit for military service because of postural defects.

* Read before the Section on Diseases of Children at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

The correct posture for the child, as for the adult, is head up, chest up, shoulders up, abdomen in, legs straight and feet forward. With such a posture the height is so distributed that little muscular effort is necessary to maintain balance. The chest is full, the diaphragm is high, and there is plenty of room for the abdominal viscera, which are given effective support by the strong abdominal muscles. In brief, the child with such a posture is an efficient machine capable of the greatest activity with the least expenditure of energy.

Fig. 1.—Poor posture resulting in round shoulders, prominent abdomen and lordosis.

Bad posture is the opposite. The head is down and forward, the shoulders stooped, the chest dropped down and narrowed, and the abdomen prominent. Lordosis is present, the knees are hyperextended and the feet pronated and flat (Fig. 1). With such a posture the chest cavity is contracted, the vault of the diaphragm is lowered, and there is less room for the abdominal viscera, which are pressed downward. The upright position is maintained only by constant muscular effort because the body is out of balance. The result is muscle fatigue and circulatory congestion in the skeletal muscles and the viscera, and a machine in which friction is at a maximum. A child with such a posture will be active, but in its activity will waste precious energy which is needed for its growth and development.

What percentage of children have sufficiently bad posture to cause symptoms is difficult to estimate, as practically no dependable records are available. We known that in 1915, 20 per cent. of all children under 12 years of age seen in the orthopedic outpatient department of the University of Pennsylvania had some form of postural defect.[1] In one of the Boston hospitals, about the same time, it was stated that 44 per cent. of the children seen had static foot trouble; probably a large portion of these had other abnormalities of posture. An examination of 100 British school boys revealed that sixty-eight had deformities, such as knock-knees, bow-legs, or flat feet.[2] Brown [3] and Talbot and Brown [4] have written excellent articles on this subject. From this meager material we may at least conclude that postural defects in children are sufficiently common to demand attention. This presentation is based on forty-eight cases observed long enough to allow some conclusions to be drawn as to symptoms and results. The age of the patients was from 1½ to 14 years.

1. Willard, D. B.: Am. J. Orthop. Surg. **13**: 241, 1915.
2. Smith, E. Noble: Growing Children, London, Smith, Elder & Co., 1899.
3. Brown, L. T.: Boston M. & S. J. **162**: 424, 1910.
4. Brown, L. T., and Talbot, F. B.: Bodily Mechanics: Its Relation to Cyclic Vomiting and Other Obscure Intestinal Conditions, Am. J. Dis. Child. **20**: 168 (Sept.) 1920; Use of Supports in Obscure Abdominal Conditions, ibid. **21**: 347 (April) 1921.

The causes of postural defects may be broadly divided into two groups, congenital and acquired. Under congenital causes are placed developmental defects in children born with lax muscles and loose joints associated with which we usually have a long mesentery and tendency to visceroptosis, the so-called long slender type. We are told that one out of five children born is of this anatomic type (Fig. 2). Under acquired causes come distortions of the lower extremities and pelvis. A difference in the length of the legs resulting in tilting of the pelvis, knock-knee, bow-legs and pronated or flat feet comprise in general these distortions (Fig. 3). Such deformities, for this is what they are, even when slight cause disturbances in balance which necessitate readjustments of the parts above and below to keep the center of gravity within the base of support. These readjustments result in lordosis, prominent abdomen, narrow chest, round shoulders, tilting of the pelvis, and at times scoliosis, that is, abnormal posture with a tendency to ptosis from lack of abdominal support and muscle strain with its symptoms. There are various underlying conditions which may be responsible for these acquired deformities. In our forty-eight cases, congenital conformation was considered as the cause in twelve, rickets was present in varying degrees in twenty-one cases, the glands of internal secretion were held to be at fault in five, congenital syphilis in three. There were seven cases in which no definite underlying cause was diagnosed.

The symptomatology, or perhaps better expressed, the effect of poor posture, is based on muscle strain and fatigue and early visceral ptosis with gastro-intestinal symptoms.

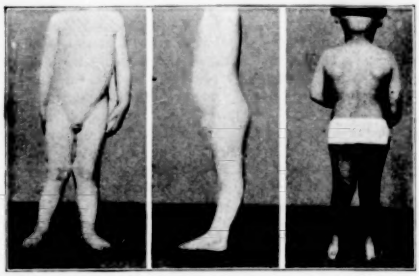
Muscle strain and fatigue manifest themselves in leg, knee, and foot ache, general tire and fatigue after ordinary activity, nervousness, irritability, and restlessness at night, lack of concentration and poor progress at school.

Fig. 2.—Congenital long, slender anatomic type.

The low placed stomach and dropped and kinked intestines may cause a variety of symptoms. The failure of such a stomach properly to empty itself, and the drag on the duodenum with interference with the drainage of the bile ducts may cause gastric attacks with nausea, vomiting and fever. The lax abdominal walls with the lowered and kinked large intestine interfere with the proper evacuation of the bowels and cause chronic constipation, often associated with acute gastro-intestinal attacks. As pointed out by Talbot and Brown, this may explain many cases of cyclic vomiting. The

same authors have noticed an intolerance for fats in children with faulty bodily mechanics, a food element which is particularly important in these cases.

One of our cases, a child, aged 1½ years, with bow-legs and a pendulous abdomen, was a marked example of this. The child could stand, but could not walk and was generally



A B C

Fig. 3.—Acquired type of faulty posture, resulting from rickets: *A*, knock-knees, pronation of the feet and poor posture; *B*, position of back of knee; *C*, all symptoms of muscle fatigue. Constipation was present in this case.

weak and flabby. He suffered from severe constipation, and there were frequent gastro-intestinal attacks which were easily brought on by increasing the fats in the diet. Following the correction of faulty posture, the diet was rapidly controlled with a continuous increase in weight and a truly astonishing general improvement. Since mechanical treatment was begun there has been but one gastro-intestinal attack, and constipation has entirely disappeared.

Functional albuminuria has long been noted in children with lordosis and poor posture. Subacute arthritis in knee and hip is occasionally encountered in postural cases. This may be purely static, but there may be an element of intestinal intoxication as well.

The most common symptoms found in our cases are given in Table 1.

TABLE 1.—SYMPTOMS RESULTING FROM FAULTY POSTURE

Symptoms	Times Occurred	Per Cent.
Leg, knee and foot ache	24	50
General tire and fatigue	28	58
Nervousness and irritability	21	43
Failure to gain weight	10	22
Restlessness at night	12	25
Constipation	15	31
Periodic gastro-intestinal attacks	2	4.4

It is not asserted that any or all of these symptoms are ascribable to defective posture alone; but the presence of one or several of them makes the investigation of the posture and general mechanics of the child a rational procedure.

TREATMENT

The treatment of these cases falls under three heads: (1) diet and general care; (2) correction of deformity, and, (3) exercises.

The diet and general care have been left almost entirely in the hands of the pediatrician. In cases in which rickets was present, a diet with a high fat content and cod liver oil to promote the utilization of calcium has been insisted on. When the glands of internal secretion were considered at fault, glandular extracts were used. We cannot say that any definite improvement resulted; probably in such cases, we may expect more from vitamins than from specific glandular therapy.

In correcting deformity, every effort was made to restrict as far as possible the use of apparatus, and at the same time, procure a plumbing up of the child from head to foot.

Mild cases of knock-knee or bow-legs with pronation of the feet were treated by wedging the inner margin of the shoe ¼ inch and by felt arch supports. In more severe degrees of knock-knee and bow-legs, braces were used, and continued until correction was satisfactory. In severe degrees of these deformities, osteotomy was advised, as the posture in such cases is always bad and correction difficult (Fig. 4).

Round shoulders, lordosis and prominent abdomen were treated with a light back and abdominal support consisting of two steel uprights extending from the lower end of the sacrum to the spine of the scapula. Added to these were shoulder straps and an apron in front. Such a support maintains good posture by lifting the abdomen, widening the chest, and holding the shoulders up and back. The children practically never complain (Fig. 5).

By exercises, we aim to tone up, and educate to proper action, the entire musculature of the body. At the same time special attention is given to those muscles which are most important in holding the erect position. These are the abdominal muscles, the muscles of the shoulder girdle and the gluteal muscles. Exercises are given daily in recumbency for the first week or two; then the correct standing position is taken up and the child is instructed in the way it is held. Exercises with carefully timed periods of rest are continued until the child stands correctly without support. Parents are

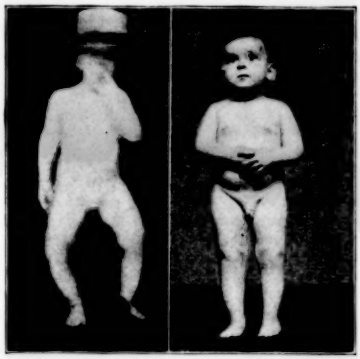


Fig. 4.—*A*, extreme bow-legs and poor posture, resulting in almost total inability to get about, much leg pain, nervousness and irritability; *B*, same patient after correction by osteotomy.

then instructed in giving the less complicated exercises, and the child reports at intervals for examination. Any tendency to relapse is counteracted by renewal of exercises and support. Supervision should be exercised until we are satisfied that the result is permanent. Exercises are not feasible with the very young; and up

to 4 years we must depend on correction of the deformity and the general activity of the child to accomplish our purpose for us.

The results in the forty-eight cases are given in Table 2.

TABLE 2.—RESULTS FOLLOWING TREATMENT TO CORRECT FAULTY POSTURE

Condition	No. Cases	Symptoms Disappeared	Patients Improved	Patients Unimproved
Leg and knee pain	24	20	4	0
General fatigue and tire	28	28	..	.
Failure to gain weight	10	..	10	0
Nervousness and irritability	21	12	6	3
Restlessness at night	12	..	9	3
Constipation	15	8	4	3
Periodic gastro-intestinal attacks	2	1	1	.

CONCLUSIONS

1. Poor bodily mechanics may often explain why a child is not enjoying the health and development it should, and may even explain acute conditions which may be affecting it. Therefore, a careful examination of posture should be a part of every medical examination, and the correction of postural faults, when found, should be insisted on.

2. Cooperation between the pediatrician and the orthopedist should be close in the care of these patients. In childhood the correction of faulty posture is comparatively easy, and if these two work together they should be able to prevent the bad effects which may follow its noncorrection.

3. The child is but the forerunner of the adult. Its conformation forecasts what manner of man will result when maturity is attained, and hence, for the future welfare of the individual, posture in childhood becomes important.

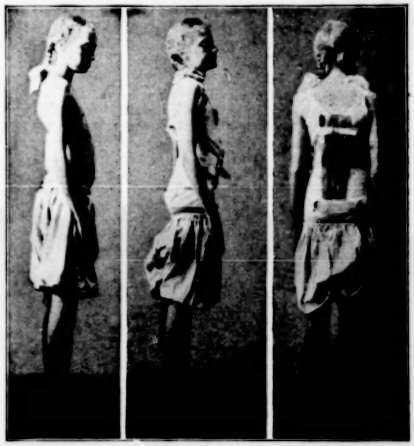
Waldheim Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. VEEDER AND DICKSON

DR. FRITZ B. TALBOT, Boston: The questions of fatigue and posture are interrelated in that they form a vicious circle. Fatigue results in poor posture, and poor posture results in fatigue. Consequently, when there is poor posture it cannot be cured without preventing fatigue. That is more important than exercises or mechanical devices used in correcting the improper posture. The reports (Talbot and Brown: *Am. J. Dis. Child.* **20**:168 [Sept.] 1920) made on extreme cases of improper posture with extreme symptoms show how important posture can be in severe cases. Dr. Dickson emphasized the importance of the condition in milder cases, and it is a rather common experience for those who are taking posture into consideration to find that when posture and fatigue are corrected, such symptoms as lines under the eyes, lack of appetite and constipation disappear. The efficiency of the children also increases. I have been told many times that after the posture was corrected and the fatigue element eliminated, where the child had previously dragged around and had no interest in life when his posture was poor, he had rosy cheeks and played and ran around like other children. I want to emphasize one point, that in cases of cyclic vomiting we must always bear in mind that we have a potential appendix, and that the underlying basis of the cyclic vomiting may be not the posture but the chronic appendix. That has been the after-history of two of the cases Dr. Brown and I reported in which improvement resulted when the posture was corrected, but the child did not become entirely well. So always bear in mind that it may be a chronic appendicitis, and do not get carried away by enthusiasm in correcting posture and forget that there may be a surgical condition back of it.

DR. CHARLES F. WAHRER, Fort Madison, Iowa: I do not think there is very much the matter with these children except that they are the chronic chiropractor maladjustments. They are the descendants of old Micawber of Dickens, and of people who have very little orthoepy, less grammar, and no rhetoric. Otherwise, the causes are that these children have inherent malpositions, the results principally not so much due to heredity but to perpetual environments. It is only seldom that you find one that walks right and is balanced properly antero-posteriorly and from zenith to nadir. The fault lies with their parents, but how can you blame the parents for not teaching their children to walk straight and lie down straight when they have all their lives acted like the famous crooked stick that was so crooked that it could not lie still? These people either lean against something or they lie down until they are disturbed. But we have to bear on the vicious circle again and inform the public that they must not allow such things in their children. The poor overburdened school teacher, who is made responsible for everything, must not allow these children to walk badly. The paternalistic government must take hold of this.



A B C

Fig. 5.—*A*, poor posture, congenital type; *B*, correction by brace, and *C*, back view of brace.

DR. JOHN A. FOOTE, Washington, D. C.: I was interested in Dr. Dickson's statement that deformities are a mechanical factor in malnutrition, and I think it is equally important to emphasize the fact that malnutritive conditions in the child may, in turn, produce mechanical defects. While it is proper to say that postural defects are due to lack of muscle balance and to muscle strain and to maladjustments, at the same time, in the acquired types of these conditions, we do not know quite so much about their remote origins as we should. A very interesting series of observations was made recently by Dr. Louis Schroeder of New York, as a part of the work of the Association for Improving the Condition of the Poor. He made a study of about 2,000 children, all in a period of a few months, in that way averting the personal equation error which sometimes vitiates the accuracy of grouped clinical findings made by several men. Dr. Schroeder found between the ages of 2 and 6, a startling number of orthopedic defects. We have been taught that the incidence of orthopedic defects generally ranges between 2 and 3 per cent. in children of all ages, but Dr. Schroeder found that it was over 24 per cent. In the next group of children ranging in age from 6 to 12 years, he found that the orthopedic defects had dropped to less than 8 per cent. In analyzing the figures further it was

found that the types of deformities which had apparently automatically corrected themselves were deformities of the extremities, of the long bones, while the deformities which continued were those of the thorax, of the spine, etc., the more serious deformities. It seems to me that in studies of this kind we can find some reason for some of the acquired muscle fatigues and defective postures. Of course, habits are formed in childhood, and if the child during the first few years of life is training his muscles to correct deformities of his long bones, he acquires certain habits of posture, certain habits of overusing one muscle to correct balance, which he persists in after the original orthopedic defect which excited this imbalance has been corrected. That is why proper nutrition has a great influence in the prevention of postural defects. It is not surprising to learn that Dr. Schroeder found that practically all these defects were due to rickets. Here, then, we have not only a suggestion of the cause, but also a preventive agency and a remedy in the encouragement of the study of the child before he has acquired defective postural habits, the practice of what might be called preventive orthopedics, studying the child from the very time he begins to walk. Supervision of the diet as well as of the posture, the encouragement of breast feeding and prenatal care—all these are included in the term "child hygiene." Child hygiene is a specific for the prevention of rickets and all of its postural sequels.

DR. COLLINS H. JOHNSTON, Grand Rapids, Mich.: Poverty, malnutrition and tuberculosis are said to go hand in hand, yet in a survey of thousands of children in Grand Rapids, Chicago, Rochester and other cities, malnutrition has been found more common among the children of the rich than among those of the poor. In Grand Rapids, in our well-to-do districts, we found that 40 per cent. of the children had malnutrition; in the districts where the poor live, we found only from 20 to 25 per cent. Are we eventually going to find out that there is some other specific cause besides infection which is the important etiologic factor in tuberculosis, the same as we have found now that there is a specific cause for rickets? And are we to lay aside the assumption that the provisions we are making all over the country for tuberculosis preventoriums and for the building up and getting rid of malnutrition in children are necessary?

DR. FLORENCE B. SHERBON, Topeka, Kan.: I agree with Dr. Johnston that nutrition was not sufficiently emphasized in the papers. I consider postural defects and fatigue among the many causes of malnutrition. At any rate, the nutrition of the child must be a fundamental consideration in the correction of either chronic fatigue or bad posture. You cannot educate a flabby, toneless muscle. You have to have normal nutrition before you do corrective work or before the child has anything with which to hoist himself upright and maintain a correct posture, which is, incidentally, an exceedingly difficult and delicate mechanical procedure requiring a constant play and interplay of many sets of muscles. Aside from the factor of feeding, which I consider is the fundamental factor in the consideration of both fatigue and posture, there are certainly mechanical factors involved which must be traced to the home, and the correction of which resides in the education of the mother. Another factor is the present general maladjustment of the American home to the needs of the growing child. One of these is the keeping of the infant from developing himself and exercising himself by everlastingly tying him in the cradle or in the go-cart instead of giving him a play-pen. Then there is the bad adjustment of the clothing, particularly stocking supporters. These distort the shoulder girdle, which is held on merely by skin and fascia during the early years before the child has had a chance to develop shoulder, back and chest muscles. Another element is the fact that there is nothing in the average home for the child to sit on between the floor and the adult chair, and he must crouch over his playthings while sitting on the floor. In general, he runs all day long with plenty of things to develop his legs, but we give him little or nothing to develop the muscles of his back, arms and chest and properly aline his body

DR. E. J. HUENEKENS, Minneapolis: I wish to emphasize what has been said about the importance of rest and correct posture in children. About a year ago I heard a paper by Drs. Talbot and Brown about improper posture, and I was so impressed that I went to the Goldthwait clinic and took his series of exercises myself. We are now using his methods in a preschool clinic and find that rest and proper posture are interrelated factors in malnutrition of children of preschool age. We insist on all of these children getting a rest twice a day, in the middle of the morning and afternoon. They are made to lie down in Goldthwait's position with a small pillow under the shoulders, but none under the head. It is not considered absolutely necessary that they sleep. Then they are put through his series of exercises. We find that while these two factors are important when the physical defects are remedied and the proper diet given, there are still a residue of cases which do not yield to any of these things. In the latter cases there is a faulty home environment. They live in an abnormal and neurotic atmosphere, something to which we do not pay enough attention. The treatment of these cases must be directed to the parents and not to the children.

DR. FRANK D. DICKSON, Kansas City, Mo.: Postural defects do not explain all the symptoms we find. Very often, there are other elements. In about 50 per cent. of these cases, rickets was present. I never consent to handling these posture cases without having a good pediatrician with me. I do not think that handling them from the purely mechanical point of view is the proper way at all. I said in my conclusions that it was only by the closest cooperation between the pediatrician and the orthopedist that we get the best results. I think that those of us who are engaged in orthopedic work are in a little better position to correct postural faults, and I am sure that when it comes to the question of diet and regulating the life of the child, the pediatrician has a great deal more information and more experience than I have had. But I think that both in the charity cases and in those of more affluent circumstances, we should in one way or the other get together and turn these children out at least with a fair chance at life, because that is what a great many of them do not get.

DR. BORDEN S. VEEDER, St. Louis: Every one recognizes that malnutrition is a very complicated subject and that there are many causes in its production. My object in bringing up this question of fatigue was simply that almost all our emphasis has been placed on diet and the correction of physical defects, such as carious teeth and bad tonsils. I am not at all minimizing the importance of these things, but it has been my experience that the correction of these alone will not give satisfactory results in a large percentage of cases, and I wish to emphasize the necessity of proper rest along with the other factors.

Accidents in Cement Industry.—According to the Bureau of Mines, accidents in the cement industry during the year resulted in the death of 39 men and the injury of 2,585, showing that for each thousand men employed during a standard year of 300 working days, 2.75 deaths and 182.49 injuries occurred. The corresponding rates for 1919 were 2.66 killed and 231.59 injured. Of the total number of accidents, 21 fatalities and 875 injuries occurred in and about the quarry pits, and 18 fatalities and 1,710 injuries occurred at the outside plants. Nonfatal injuries to men working inside the quarries were due principally to the following causes: 135 to haulage accidents, 121 to falls or slides of rock or overburden, 91 flying objects, 78 machinery, 61 handling rock at face of quarry, 50 falling objects, 36 falls of persons, 35 timber or hand tools, 28 explosives, and 23 to drilling or channeling. Of the injuries at the outside plants or mills, 207 were caused by machinery, 194 by hand tools, 179 by falling objects, 178 by flying objects, 145 by burns, 132 by falls of persons, and 125 by haulage accidents. Among the states having the largest number of accidents were Pennsylvania with 514, California, 412; Missouri, 260; Kansas, 258; Texas, 209; Illinois, 137; New York, 99, and Washington, 29.

OBSERVATIONS ON THE HEART IN DIPHTHERIA *

S. CALVIN SMITH, M.S., M.D.
PHILADELPHIA

From the standpoint of general practice, there are few if any acute diseases in which heart disturbances are more likely to arise than in diphtheria. Certainly there are no infections, either acute or chronic, in which circulatory failure and prompt fatalities ensue with such alarming suddenness. The treacherous action of diphtheria on the heart is notorious, and yet there are many instances of the disease in which the heart becomes markedly irregular at intervals and perhaps remains so throughout recovery without any symptoms or signs of circulatory failure. The studies here presented were undertaken for the purpose of establishing, if possible, criteria by which a clinically satisfactory differential diagnosis might be made between the simpler pulse disturbances which are of little consequence and the serious heart abnormalities which result fatally.

The cardioclinical and cardiographic observations which constitute this report are based on a study of 242 patients suffering from diphtheria of varying severity

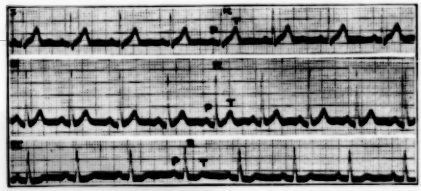


Fig. 1.—Normal electrocardiogram (for comparison with subsequent illustrations). An electrocardiogram depicts the course of the excitation wave as it travels along the conduction system of the heart. The representative of the auricular impulse is called the *P* wave. The *Q-R-S-T* complex denotes ventricular activity. *Q-R-S* indicate the spread of the contraction wave in the fibers of Purkinje. *T*, it is believed, represents the final activity of the ventricles. A cardiac cycle begins where *P* leaves the base line and terminates with the end of the *T* wave. From *T* to *P* is the diastolic period of the heart. Usually, each cycle is a rhythmic repetition of its predecessors. Abnormalities of the cardiac mechanism are present when any of the waves of one or more cycles are changed in sequence, in amplitude, in direction, duration or distance, as shown in the following electrocardiographic studies.

and extent, involving the respiratory tract, who were admitted to the Philadelphia Hospital for Contagious Diseases during the summer months of 1920. For the opportunity of making the studies I am under obligation to Dr. C. Lincoln Furbush, Director of Health of Philadelphia.

Of the 242 patients, the vast majority presented a rapid heart rate as the only evidence of cardiocirculatory disturbance on admission. Seventy-two per cent. of the number progressed through convalescence from diphtheria without any further evidence of cardiac disturbance. The other 28 per cent., after a lapse of several days in the hospital, showed vagaries of the pulse and some of them gave evidence of grave cardiocirculatory fault. It thus became evident that the heart abnormalities encountered in these studies of diphtheria could be divided, for the purpose of discussion, into two groups in the order in which they appear, namely, a period of what may be called initial tachycardia, including the vast majority of admissions; secondly, those which later on presented manifestations which can be tentatively known as the irregularities of convalescence, embracing 28 per cent. of the total number.

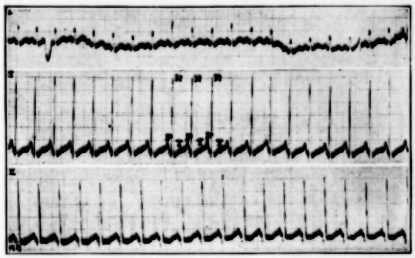


Fig. 2.—Initial tachycardia of diphtheria: Rate, 172.

INITIAL TACHYCARDIA

Tachycardia, as shown in Figure 2, was the only heart disturbance present at the time of admission to hospital, in those patients who were admitted in consequence of positive cultures from a suspicious throat or within a few hours after a diphtheritic membrane was observed. When diagnosis and antitoxin treatment had been neglected until the diagnosis finally became apparent, sufficient days had, of course, elapsed in the interval for the period of initial tachycardia to pass, and heart block was manifest by the time of the delayed admission. Such a circumstance is illustrated in Figure 3, in which the child was admitted to the hospital on the seventh day of the disease.

The initial tachycardia varied in rate from 135 to 172, the average for six records being 149.8 per minute. The average rate of 150 beats per minute is greater than that ordinarily encountered in febrile conditions and, if produced by sympathetic febrile acceleration of the pulse, could be expected to subside within thirty-six or forty-eight hours following the administration of antitoxin. However, if the tachycardia was the result

Fig. 3.—Heart block on delayed admission: This record was taken during the first hour following admission to the hospital of a patient in whom diagnosis and antitoxin treatment had been delayed until the seventh day of the disease.

of direct invasion of heart tissue by toxins, producing a moderate degree of myocarditis which was suggested by abnormality in the waves of the electrocardiogram (Fig. 4), then the initial tachycardia persisted for a period of several days following the disappearance of the diphtheritic membrane, and persisted despite general improvement in the clinical condition of the patient. Such continuance of the initial tachycardia was of ill portent, and in four cases of this series of studies eventuated in heart block similar to that shown in Figure 5.

* Read before the Section on Practice of Medicine at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

IRREGULARITIES OF CONVALESCENCE

It is logical to assume that convalescence from diphtheria has begun when the membrane begins to recede and when toxic manifestations decrease in severity. Such clinical circumstances are produced by the administration of antitoxin. Therefore the convalescence from diphtheria has its beginning when antitoxin is administered in sufficient quantity to produce a therapeutic result. Granting this premise, the 28 per cent. of patients who developed heart abnormalities between the sixth and the eighth day following antitoxin may be said to have exhibited irregularities of convalescence.

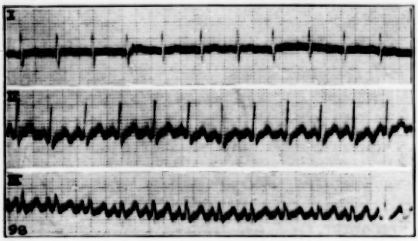


Fig. 4.—Tachycardia on admission: Ventricular rate, 135. Seven days later the curves of Figure 5 were taken.

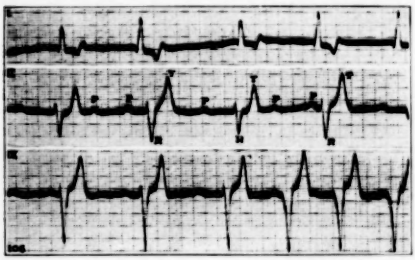


Fig. 5.—Sudden heart block: Seventh day; one hour after pulse suddenly fell to 37.

Approximately 65 per cent of the convalescent pulse irregularities consisted of nothing more than sinus arrhythmia (Fig. 6), which is generally believed to be physiologic in childhood and natural to some hearts; or else they took what I believe is equally as innocent a form of irregularity, namely, sino-auricular block (Fig. 7). Evidence to sustain this opinion will be offered farther on. Both conditions are capable of clinical recognition in the majority of cases. The irregularity of sinus arrhythmia, as is well known, is characterized by an increase in rate on inspiration, by a decrease on expiration and by the rate remaining unchanged when the breath is held. That due to sino-auricular block, I find, diminishes when the heart rate is accelerated by emotional disturbances, by sustained interest or as a result of physical effort; under such circumstances the pulse no longer seems to drop beats rapidly. Neither one of these minor irregularities is striking in onset, neither is progressive in nature, neither eventuates in a more serious irregularity, nor is either sinus arrhythmia or sino-auricular block ever attended by symptoms of urgent cardiac embarrassment.

Premature contractions furnished 20 per cent. of the irregularities of convalescence, those of auricular origin occurring five times as often as ventricular premature beats. There is nothing in these studies to indicate that premature contractions herald the approach of graver cardiac involvement (Figs. 8 and 9).

As already stated, sinus arrhythmia and sino-auricular block constituted 65 per cent. of the heart irregularities, while premature contractions furnished an additional 20 per cent. of what may be called minor pulse disturbances. The remaining 15 per cent of pulse abnormalities were due to the sudden inception of high grade heart block about the seventh day, which rapidly progressed in deepening degree (Fig. 5). Three out of every four children thus affected could be expected to die before thirty-six or forty-eight hours had elapsed; an occasional one survived a few days longer. The earliest death of these studies occurred within five hours after heart block was announced by a sudden

Fig. 6.—The sinus arrhythmia of childhood: This physiologic irregularity of the child heart is recognized by the gradually varying distances between the tall *R* spikes of the record, and by the gradually varying lengths of the flat base-line, which represent diastole. Note that each *P* (auricular) wave is followed in natural sequence by the *R* and *T* (ventricular) waves, despite the distances between cycles.

reduction of one half of the preexisting pulse rate (Figs. 4 and 5).

Before proceeding to a discussion of the various abnormalities mentioned above, it might be well at this point to consider a question which naturally arises: Could the administration of antitoxin have been in any way responsible for the development of the convalescent abnormalities? If the employment of antitoxin was going to affect the heart adversely, it would be logical to expect that the disturbance would occur during the first few hours which followed the use of the serum and not be delayed until the sixth or eighth day. The customary effect of antitoxin is illustrated in a

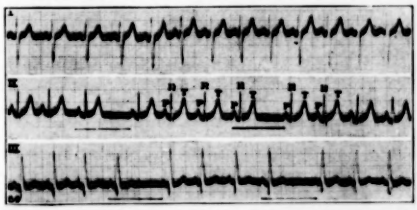


Fig. 7.—The "sino-auricular block" of convalescence: Leads II and III show long periods of diastole, due to a temporary abeyance of the impulse for contraction at the sino-auricular node. This condition is differentiated from sinus arrhythmia by the fact that there is a sudden lengthening of diastole, as though a beat were dropped out.

patient who was studied from the hour of admission to the fourth month after recovery in whom the heart rate was 142 before the injection, 160 the first minute after, 112 three minutes later and 112 on the first and second

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days thereafter. Antitoxin promptly improves, rather than aggravates, the condition of the heart. There was one patient in whom the use of antitoxin could be credited with producing heart abnormalities, observed in a case of anaphylactic shock. The patient on admission yielded an electrocardiogram in which the waves were normal; three minutes after the intravenous injection of 15,000 units of diphtheria antitoxin there was evidence of marked auricular enlargement in the graphic record; thirty minutes after the injection the auricles were contracting asynchronously, the ventricles were contracting asynchronously, and right ventricular preponderance was present. A violent chill then ensued which lasted until the death of the patient two hours after admission. This prompt fatality was undoubtedly due to antitoxin; but there was no evidence whatever to indicate that antitoxin might be responsible for convalescent heart abnormalities.

"SINO-AURICULAR BLOCK"

It is generally believed that the irregularity called sino-auricular block, as illustrated in Figure 7, is a pathologic condition. Once established, the condition is said to persist or to progress; it is not supposed to abate or to disappear. It has been stated by some observers that sino-auricular block is the precursor of

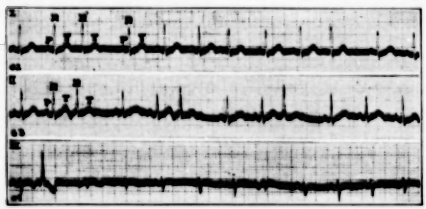


Fig. 8.—Multiple auricular premature contractions: The irregular distance between beats is caused by premature contractions originating in the auricles, as evidenced in the variations in form of the auricular wave *P*. In Lead I the *P* wave preceding the irregularity is isoelectric (flat); in Lead II, preceding the irregularity, it is buried in the *T* wave of the previous contraction, evidenced by the increased size of the *T* so situated; in Lead III the *P* wave is inverted preceding the irregularity.

higher grades of block and that its detection warrants heart care.

In diphtheria this irregularity was invariably observed in convalescent patients; it invariably occurred alone and was not associated with any other low-grade block, such as delayed conduction. Furthermore, sino-auricular block did not eventuate in block of higher grade. Experimental studies led to the belief that sino-auricular block is often physiologic; it can be either induced or made to disappear by manipulating the psychic processes or muscular system of the individual who exhibits the phenomenon.

Records sustaining these findings and indicating that mental stimulation or physical effort will cause sino-auricular block to disappear, and that opposite circumstances will cause it to reappear, will be reported elsewhere.[1] Sufficient has here been said to indicate the harmless nature of the phenomenon.

PREMATURE CONTRACTIONS

Twenty per cent. of the pulse irregularities occurring in patients convalescent from diphtheria were due to premature contractions, as illustrated in Figure 8. Note that in the return study (Fig. 9), taken five months later, all auricular abnormality has disappeared and the electrocardiogram is normal. The child was also apparently normal at the time of return study.

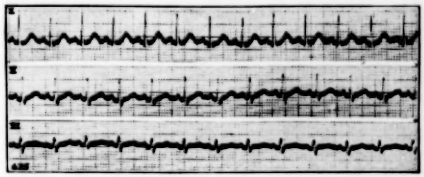


Fig. 9.—Disappearance of premature contractions: Five months after the hospital records in Figure 8 were taken, the 7-year-old child returned from school for further heart study and yielded the records of this Figure 9. Auricular premature contractions have completely disappeared.

These records demonstrate that even the multiple auricular premature contractions which may arise in diphtheria, and which produce a most disquieting irregularity at the time, do not impose a heritage of heart muscle weakness on a child whose parents insist on heart-care after the patient returns home.

In diphtheria, auricular premature contractions were found to reverse the usual clinical finding by occurring five times oftener than ventricular premature contractions. One might seek to explain this predominance on the grounds that an acute infection is more likely to cause irritable foci in the lightly constructed auricular musculature, rather than in the thicker, more vascular and hence more resistant ventricular muscle. Premature contractions of ventricular origin are clinically the more frequent, probably for the reason that they are often associated with structural change in the heart muscle of the middle-aged or elderly persons who are seen in hospital or private practice. Auricular premature contractions, on the other hand, are more a manifestation of a mildly acute toxic effect on heart tissue which has not as yet undergone actual alteration in structure.

Auricular Fibrillation.—Reasoning along the lines of degenerative changes in heart muscle, one might find a fairly satisfactory explanation for the total absence

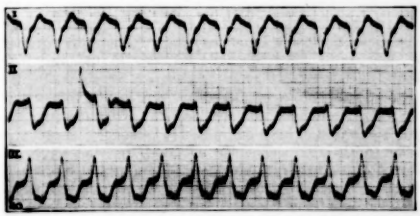


Fig. 10.—A bizarre record in toxic myocarditis.

of uncomplicated auricular fibrillation in a study of diphtheria. It will be conceded that auricular fibrillation is, for the most part, an evidence of structural change in the auricular musculature. In a disease so acute and fulminating as diphtheria, there is usually not a sufficient lapse of time between onset and termina-

1. In an early issue of the American Journal of the Medical Sciences.

tion to permit of actual structural alteration in heart tissue. Structural myocardial change, such as is so frequently found at necropsy in hearts which exhibited auricular fibrillation, can usually be attributed to either definite antecedent damage, chronic infections or perhaps to long continued and excessive physical strain; none of these factors exist in that fulminating disease of childhood, diphtheria; hence auricular fibrillation was not encountered.

ACUTE HEART BLOCK IN DIPHTHERIA

Fifteen per cent. of the pulse irregularities which occurred between the sixth and the eighth day of diphtheria convalescence were due to the sudden inception of high grade heart block, the *bête noire* of diphtheria.

It might be well at this point to sketch briefly certain fundamental features of the condition. Normally, the impulse which results in the contraction of the heart has its origin in the right auricle, and is transmitted to the ventricular muscle over a definite established neuromuscular pathway called the conduction system. The normal ventricle depends on auricular tissue to originate, and on the conduction system to transmit, the impulse which results in ventricular contraction. Heart block, then, is a term describing the blocking or stoppage of the impulse for the heart's contraction, and it may have its seat at any point along the neuromuscular pathway. Such blocking of the impulse interferes with the natural, sequential and orderly response of the ventricles to the auricular impulse. In the lower grades of block the ventricles still respond to the auricular impulse, but the response is sluggish or delayed. By high grade block is meant failure of ventricular response to auricular impulse. The failure may be partial or it may be complete. If the ventricles respond only to alternate auricular contractions, the condition is called "two-to-one" block; but if the impulse for contraction is so completely blocked that there is no transmission whatever of the excitation wave from auricle to ventricles, the condition is known as complete heart block.

Under such circumstances, the ventricles are capable of initiating a rhythm of their own, in the neighborhood of 28 or 30 beats a minute, and the auricles continue to contract at the individual's customary heart rate of 75 or more beats per minute. Auricles and ventricles are now contracting absolutely independently of each other and without any sequence whatever; the dissociation of the chambers is complete.

Predisposing Circumstances.—There are four circumstances which lead one to anticipate the occurrence of heart block in diphtheria convalescence. The first is constitutional inferiority of the patient; one whose physical reserve has been depleted by previous illnesses or by malnutrition, or who is for any reason constitutionally inferior, may be expected to have a stormy convalescence from diphtheria with the cardiovascular system as the center of the storm. The second predisposing circumstance is the amount of time, in hours, which has elapsed between the onset of disease and the administration of antitoxin in therapeutic dose. The third is the degree of toxicity at the time of membrane formation; if the patient is then profoundly toxic and reacts slowly to antitoxin, a cardiac emergency is likely to arise later. The fourth ominous circumstance is protraction of the initial tachycardia over a period of several days: in such instances it is probable that the increased rate is not due to the usual sympathetic irritation or vagal depression, but likely arises as a result of direct toxic invasion of heart muscle from the onset; the rapid rate thus sustained, and the ever-deepening invasion of heart structure as the days go by, could readily result in a depletion of cardiac reserve force until the conduction node itself became impregnated with the toxins, giving rise to a condition which may be designated as toxic myocarditis, or toxic heart block (Fig. 10).

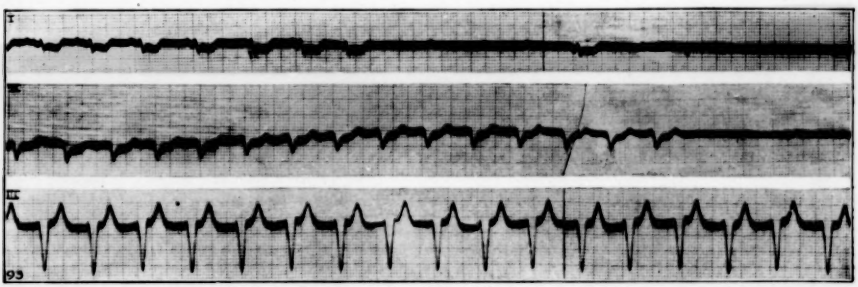


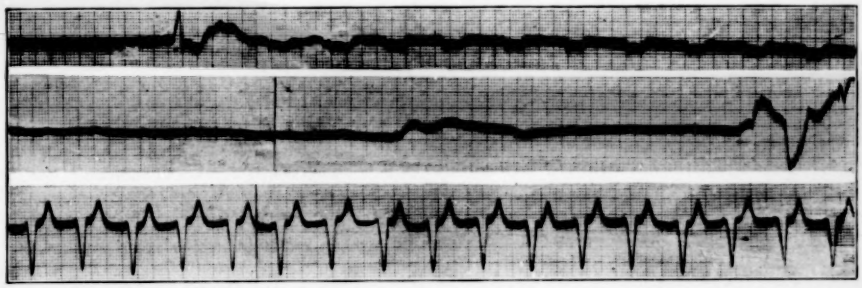
Fig. 11.—Toxic heart block: Note the long period of ventricular inactivity which in Lead I amounts to three seconds and in Lead II the period of pulse quickening which may be interspersed in toxic heart block, deceiving the person whose examination of the pulse is cursory

Clinical Course.—It is characteristic of the acute heart block of diphtheria that it is essentially high grade from its earliest recognition. It is strikingly sudden in onset and may result in the halving of the preexisting pulse rate within an hour. During the course of these studies, not one instance of low grade block was observed.

The malady rapidly advances, and the patient, while critically ill and to a degree apathetic, is conscious and may be aroused; an occasional patient is fretful and restless. The extremities are cold, the skin colorless, and the pallor of the patient is of that character which makes a physician instinctively apprehensive. Blanching around the mouth is a striking peculiarity. The beats of the radial pulse, which may at first be sixty a minute or thereabouts, soon are separated by longer intervals; there may be occasional intervals of pulse quickening

V. 7
1921

(Fig. 11). The pulse is of low volume and easily compressed; the precordial impulse, if discernible, is faint and circumscribed; there is considerable difficulty in detecting pulsations of the femoral and popliteal arteries. The respirations are slow, shallow and usually quite regular. Cheyne-Stokes respiration, characteristic of the terminal heart block of later life which is due to structural alteration in heart tissue, is more often absent than present in the acute heart block of diphtheria convalescence. In studying this acute affection I never succeeded in hearing the regularly recurring auricular contractions which one may ordinarily expect to hear, with ear laid to the chest, during the periods of ventricular silence of complete heart block. Nor was I ever able to discern four or five waves in a pulsating jugular to one wave in the carotid; the vessels of the neck did not pulsate in the toxic block of these children and young adults as they do in the cardiosclerotic blocks of later life. The clinical diagnosis of heart block was based on the predisposing circumstances, the precipitous fall in pulse rate about the seventh day, the appearance of the patient and the profound cardiocirculatory urgency. Electrocardiography confirmed the diagnoses thus predicated.



to twelve seconds. Four minutes later, when Lead II was taken, rhythmic regularity appears, the heart rate being 90. Lead III illustrates and inattentive.

The symptoms and signs described above deepen in degree (compare Figs. 12 and 13) until life is extinct, death usually occurring within twenty-four or thirty-six hours of the onset of heart block. As previously stated, three out of every four children thus affected may be expected to die within this time limit; one patient survived the inception of block for only five hours, and two others of the series lived until the fourth day after. There was but one patient in whom spontaneous return of atrioventricular conduction was observed, on the fourth day following the inception of heart block (Figures 14 and 15); but the heart was evidently too exhausted to maintain the improvement, and before twenty-four hours had elapsed the patient quietly passed away. None of the children who were stricken down with acute heart block in convalescence got well.

Heart block is generally regarded as but localized evidence of a more widely spread involvement of heart tissue; the conduction system has simply shared in the general involvement of heart structure. In diphtheria, acute heart block in all likelihood arises as a result of toxic invasion of heart muscle; were it due to structural change in heart tissue, such an event as spontaneous resumption of normal rhythm could not occur (Figs. 14 and 15). If the toxic invasion is in that part of the myocardium through which the greater trunks of the conduction system course, prompt and rapidly progressive heart block would result, and death be due to toxic myocarditis. On the other hand, that area of the myocardium to be invaded might be remote from the bundle of His and its main branches; under such circumstances there would be no clinical evidence of cardiac involvement, and as time went on, fatty degeneration or interstitial myocarditis—the likely sequelae of toxic invasion—would ensue and at a later date would result in complete inhibition of cardiac contraction. This hypothesis will account for the instant and unexpected deaths in persons who have to all appearances fully recovered from diphtheria. The possibility of recognizing such myocardial degeneration when clinical recognition has so often failed lies in the hope that electrocardiography, perchance, may record an aberrant pathway of the excitation wave as it courses along those finer arborizations of the conduction system which are distributed in affected areas of heart muscle. Certainly every person convalescent from diphtheria is entitled to such aid as electrocardiography might afford; and every contagious disease hospital is entitled to such a certificate of stewardship as repeatedly normal electrocardiograms would prove to be in the patient who is discharged as cured.

SUGGESTIONS IN TREATMENT

Certain clinical deductions which are applicable in the treatment of diphtheria can be set forth:

1. The earlier antitoxin is used intravenously, the less likelihood there is of eventual heart muscle poisoning. The hope of preventing serious and probably fatal heart complications lies in four procedures: the exhibition of antitoxin in sufficient dose, by the intravenous route within the first twenty-four hours of diphtheritic invasion, followed by absolute rest for at least a week after the disappearance of all clinical symptoms and signs.

2. That objection which parents or patients may have to the intravenous use of antitoxin—the fear that it may cause sudden death—can be met by protecting the patient against the ever-present possibility of lethal anaphylactic shock through the simple expedient of first

employing a desensitizing dose (0.5 c.c.) of antitoxin; an hour after this small subcutaneous dose the full therapeutic dose can be slowly administered intravenously. It would seem better to delay the therapeutic dose for an hour, awaiting the action of the desensitizing dose, rather than to run the risk of (*a*) fatal anaphylactic shock, on the one hand or, on the other hand, (*b*) to invite serious heart complications by waiting forty-eight hours for an intramuscular injection to be completely absorbed.

3. Heart care should extend far beyond the usual quarantine period prescribed by law. It is not possible to estimate the load which such an acute infection as diphtheria has thrown upon a heart; nor does the physician very often know the capabilities of the child heart prior to the battle with acute infection. It is therefore the part of wisdom to continue heart vigilance for several weeks following diphtheria and, even though the patient has to all appearances grown strong, to insist upon a gradual return to full physical activities, meanwhile studying the heart response under varying circumstances of rest and exercise until the full normal activities of the patient are resumed. The removal of infective tonsils and infective teeth when the patient is strong enough to undergo such operations will speed the days of complete recovery.

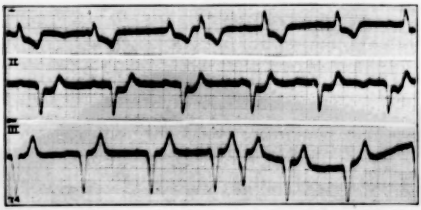


Fig. 12.—Toxic heart block: Circumstance, one hour after pulse rate fell from 128 on the sixth day of convalescence.

4. In protecting from overstrain the child heart which has passed through diphtheria or any other acute infection, regulation of school life is an important point to be considered. "Cardiac classes," where weaker children have comfortable furnishings, limited hours of study, stated and regulated periods of play, and where they are excused from routine gymnastics, fire drills, marches, etc., need not be limited to the large centers of population. The smaller communities can institute similar cardiac classes in their schools if the physicians of the community explain to the school boards the logic of saving the child heart to adult usefulness. Furthermore, such cardiac classes could with advantage include in their enrolment not only children with evidence of actual heart damage, but also children who have recently convalesced from any acute infection. The problem of cardiocirculatory efficiency in the adult can be met in the fullest sense only by conserving the heart of the child.

Drugs.—Atropin is of doubtful utility in the tachycardia of diphtheria. By its action on the periphery of the vagi, it may in some instances temporarily reduce the heart rate, but as a usual thing the rapid heart subsides as antitoxin reduces the amount of toxins which have been driving the heart.

Digitalis is distinctly contraindicated in diphtheria. In the minor pulse irregularities, such as sinus arrhythmia, sino-auricular block and premature contractions, the drug may, by stimulating the force of the ventricular contractions, reduce slender cardiac reserve to a degree at which there is a likelihood of the heart muscle's being damaged by toxins which may yet remain in the body. Again, in heart block it may further reduce the conductivity of the already invaded atrioventricular bundle to a point at which the slim hope of a spontaneous resumption of normal rhythm—which is the only hope—is destroyed (Figs. 11 and 12).[2]

Epinephrin, despite its fleeting action and the consequent necessity of repeated administration, will likely prove to be the stronger member of the usually inefficient group of drugs which are employed in the treatment of diphtheritic heart block. By sustaining the myocardium it may tide the heart over a critical period until such a fortunate incident as a spontaneous resumption of normal rhythm ensues in heart block.

Strychnin, by stimulating the suprarenals and causing an increase in suprarenal secretion, may have a similar beneficial cardiac effect, although the circulatory failure that is attendant on toxic heart block is likely to inhibit the response of the suprarenal glands to such stimulation.

Caffein, in the later days of convalescence from diphtheria, often proves to be a valuable aid in improving circulatory tone, as may also such systemic tonics as iron, quinin and strychnin.

Finally, it cannot be overemphasized that the time to treat the serious heart complications of diphtheria is long before they arise, on the first day of diphtheritic infection, by the proper employment of antitoxin. And the last obligation of the physician to the patient is to secure normal cardiographic records, taken before and after exercise, ere cardiac vigilance is relaxed in a person whose heart has been exposed to the storms of diphtheria.

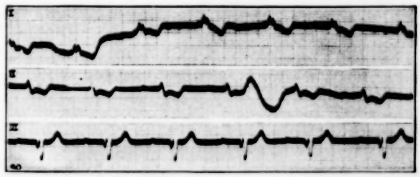


Fig. 13.—Same patient as shown in Figure 12. Note that what should be the slender, narrow *R* spikes are now notched, suggesting that the ventricles are not contracting synchronously.

CONCLUSIONS

1. The heart abnormalities which arise in diphtheria are manifest in disturbances of the conduction system, reflected in the pulse.

2. The pulse abnormalities can be divided into initial tachycardia and the irregularities of convalescence.

3. Initial tachycardia accompanies the appearance of the diptheritic membrane and usually subsides within forty-eight hours following the exhibition of antitoxin; there may then be expected a period of cardiac tranquillity for six or eight days. Initial tachycardia is of

2. In this connection it may be stated that for several years at the Philadelphia Hospital for Contagious Diseases, Dr. S. S. Woody, the medical director, had a ruling prohibiting the employment of digitalis in diphtheria except on written permission.

serious import only when it persists during convalescence, and it may then be regarded as the probable precursor of heart block.

4. Pulse irregularities of convalescence may be expected to arise between the sixth and eighth day of convalescence in 28 per cent. of the children affected with diphtheria.

5. Of these convalescent abnormalities, 65 per cent. consist of sinus arrhythmia and of a condition called sino-auricular block; 20 per cent. consist of premature contractions; none of the three are accompanied by symptoms or signs of circulatory embarrassment, nor do they eventuate in serious circulatory disturbance.

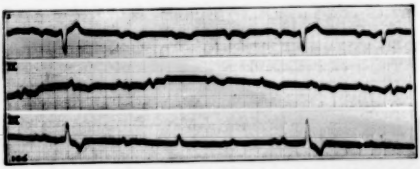


Fig. 14.—The heart block of convalescence: The irregularity was first noted on the sixth day of convalescence. The patient, contrary to rule, survived from day to day, probably in consequence of inherent heart muscle strength, and on the ninth day yielded the following electrocardiogram.

The remaining 15 per cent. of convalescent irregularities consist of high grade heart block, which is strikingly sudden in onset and accompanied by urgent cardiocirculatory symptoms; death therefrom may be expected within thirty-six hours. None of the patients survived.

6. Sinus arrhythmia is physiologic in childhood, and whether it arises spontaneously or is experimentally induced, its presence may be taken as evidence that the heart has in all probability returned to its customary rhythm.

7. Sino-auricular block, a term employed to define a pulse irregularity, is probably as physiologic as is sinus arrhythmia.

8. Premature contractions of auricular origin occur five times as often as ventricular premature contractions in diphtheria. In these studies they did not eventuate in serious cardiocirulatory disturbance.

9. Acute heart block is without exception the only pulse abnormality which resulted fatally during the periods covered by these observations. Its occurrence may be anticipated when the patient is constitutionally inferior; when toxicity is profound or persistent during the earlier stages of diphtheria, and when the initial tachycardia is protracted.

10. Acute heart block was not once observed early in the clinical course of patients in whom early diagnosis had been followed by early antitoxin treatment in therapeutic dose.

11. Auricular fibrillation, as a pathologic entity, does not seem to occur in diphtheria.

12. Diphtheria antitoxin temporarily stimulates the rate of the heart and decreases, rather than increases, certain pathologic waves of the electrocardiogram.

13. In a rare instance when anaphylactic shock followed the injection of antitoxin, there was evidence of auricular enlargement shown by the electrocardiogram; within thirty miuutes the auricles were contracting asynchronously and the ventricles were contracting asynchronously; right ventricular preponderance was present, a violent chill ensued and death occurred within two hours.

14. Digitalis is contraindicated in diphtheria.

323 South Eighteenth Street.

ABSTRACT OF DISCUSSION

DR. EDWIN H. PLACE, Boston: I disagree somewhat with Dr. Smith in regard to the increased susceptibility of the constitutionally inferior child. In my service the constitutionally superior child has been the one most likely to be injured by diphtheria poison. One of the striking peculiarities is not only the suddenness with which heart failure appears, usually on or after the sixth day of the disease, but also the completeness with which recovery occurs when the patient does not die. Deaths almost always occur within a few days. Patients who survive heart block for a week have a good chance for recovery; and death in this type never occurs after two weeks. Recovery undoubtedly occurs in marked cases of heart block. After recovery the heart is perfectly normal; after a few months no change can be shown to have occurred in cases which have shown marked disturbance. The electrocardiograph and all other instruments fail to detect any abnormality. The suddenness in this improvement is hard to explain if we appreciate that toxic injury has occurred to the neuromuscular tissues of the heart. My experience with digitalis is entirely in accord with Dr. Smith's. Digitalis has not been used for more than ten years. Digitalis has never yielded the slightest benefit, nor does any other heart stimulant. The only benefits accrued result from attempts to lower the work thrown on the heart rather than from attempts to raise the heart's capacity to do work. The treatment which seems to give the best results is the treatment which keeps the patient at the very minimum of metabolism. Persistent vomiting can be controlled only by giving nothing by mouth; by injection of fluids by rectum and under the skin to relieve thirst, a minimum amount of fluid, and the use of morphin in minimum doses to keep the patient in quiescence on account of the epigastric pain. The mortality in this type of involvement has been from 50 to 85 per cent., some series running lower than others. I should like particularly to emphasize the point Dr. Smith made, that treatment is of very little avail and prevention is absolutely sure, provided antitoxin is given early in the disease. This

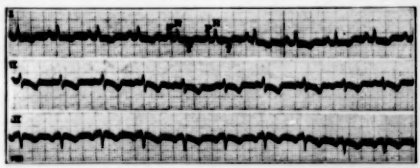


Fig. 15.—Heart block with spontaneous recovery: The heart shown in Figure 14 is resuming normal atrioventricular rhythm. The improvement, however, was only temporary, and sudden death occurred the following day.

cardiac injury occurs only in the neglected case. Neglect for only twenty-four hours will allow this type of heart disease to occur. The clinical manifestations are as reliable an indication of the toxic injury to the heart as the electrocardiograph.

DR. ALEXANDER LAMBERT, New York: A type of irregularity following diphtheria is a sudden tachycardia. The pulse is fairly normal in frequency when the patient is quiet, but the mere rising from the seat will make the pulse shoot up from 70 or 80 to 160 beats a minute. Is the vagus injured or is it an injury of the myocardium? I have never been able to obtain any electrocardiographic or other tracings of this phenomenon.

DR. M. H. FUSSELL, Philadelphia: I want to reemphasize what Dr. Smith and Dr. Place have said as to the time rela-

tion and the dose relation of antitoxin to these heart failures in diphtheria. All of us are too prone in private practice to put off the time of administration of antitoxin. Certainly, it is a great deal better to administer antitoxin when the diagnosis is uncertain than to wait. The administration of antitoxin is harmless, and the lack of administration may lead to fatal cardiac complications.

DR. PAUL D. WHITE, Boston: Because of the postmortem findings in the heart in cases of diphtheria, and because of such work as that reported by Drs. McCollum and Smith, we now rarely see patients with high grade heart block in these postdiphtheritic cases. We must make a place in heart diseases for the classification of the heart disease following diphtheria.

DR. JOHN H. BLODGETT, Bellows Falls, Vt.: What is the ordinary dose of antitoxin today and the interval of administration? What significance do you place on the symptom of bruit de gallop in diphtheria?

DR. WILLIAM H. BLOCK, New Orleans: It seems extremely important that the diagnosis should be made as early as possible in order to get the effect of the antitoxin as quickly as possible. Would that have any effect as to the outcome of cases of the sort under discussion?

DR. S. CALVIN SMITH, Philadelphia: Dr. Place has brought out the point that some cases of heart block end in recovery, although the presence of block in such cases has not been established definitely by graphic records. Of the cases of heart block which I studied and in which the written record proved block to be present, none ended in recovery. However, if my paper creates the impression that all cases of diphtheritic heart block end in death, it is well that Dr. Place has corrected the impression; for one can readily conceive of a toxic block of a degree not sufficient to overwhelm the heart, and it is also conceivable that a heart may have sufficient inherent strength to overcome the insult of toxins. I was unable to secure any records of patients who exhibited the pulse vagaries mentioned by Dr. Lambert, although I have always felt that such rate variations were a manifestation of myocardial involvement. The initial dose of antitoxin at the Municipal Hospital of Philadelphia varies in accordance with the degree of toxicity present on admission from 5,000 to 20,000 units intravenously. In mild cases, on rare occasions, an intramuscular injection of from 10 000 to 30,000 units may be administered. I do not have any records of patients in which a bruit de gallop was noted, hence I cannot state whether the auscultatory phenomena are due to delayed conduction or to a bundle branch block.

Federal Eugenicist.—A federal eugenicist, attached to the Public Health Service or to the Children's Bureau, aided by an ample corps of assistants, would constitute an effective administrative agency for sterilization under federal authority. Some of the assistants of the office of federal eugenicist should be delegated to cooperate with the Immigration Service of the Department of Labor, and the Bureaus of Criminal Identifications, of Investigation, and of Prisons, of the Department of Justice, and possibly with the Bureau of Education of the Department of Interior.—H. H. Laughlin, *Social Hygiene* **6**:530 (Oct.) 1920.

USE OF THE SIGMOID FLEXURE AND CECUM IN PELVIC PERITONIZATION *

CAREY CULBERTSON, M.D.
CHICAGO

Since the early days of abdominal surgery, one of the important problems confronting the operator has been that of covering or otherwise disposing of the raw areas remaining as a result of extensive peritoneal adhesions. Adhesions are either primary, due to inflammation or malignancy, or they are secondary, following operation. Roughly speaking, two varieties are commonly encountered: First, those which are cobweb or veil-like in their formation or which extend across the pelvis or abdomen in bands. These are light and readily broken up, leaving relatively little rawness, or they are dense and tough and when broken up leave numerous raw points. They are not highly vascular, so that their separation is not attended by much oozing. Second, those which represent suppurative processes. They are short and dense, more or less extensive throughout the entire affected area, are infiltrated, organized and highly vascular. They constitute the development which brings the affected organs in close apposition and produces fixation of the structures involved, and their separation opens up extensive raw areas.

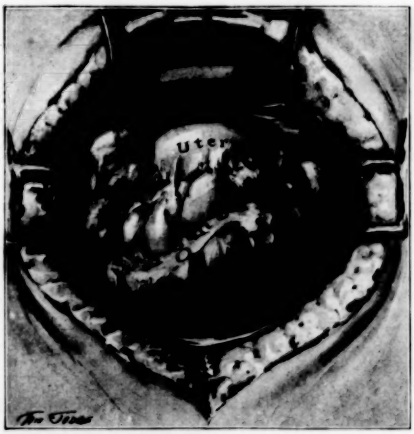


Fig. 1.—"Autoperitonization": The sigmoid flexure has become adherent to the diseased uterus and appendages and, with the rectum, has closed over the posterior culdesac.

It is with adhesions of this variety involving the pelvis and lower abdomen that this paper has to do. The problem consists not only in providing for the care of the raw areas left after breaking up adhesions in the pelvis or after the extirpation of the pelvic organs, but also in preventing the formation of fresh adhesions. It may be set down as an axiom that there is no set method of avoiding postoperative adhesions in every case, even when operative technic is all that can be desired. Various methods have been employed by virtually all operators to prevent adhesions from forming after operation on both clean and infected fields. The use of ether, of sterilized oil, of silver foil and other such means need only be mentioned as having been tried and proved in the long run unsatisfactory. Transplantation of peritoneal or omental grafts is perhaps the best method for a small area of raw surface that must necessarily remain exposed. While effective as a general proposition, this method, however, has the objection of being painstaking and tedious. The ideal in

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

V. 7
1921

operation on the pelvis when raw areas are produced is to leave none but smooth peritoneal surfaces throughout. Work on the pelvis and abdomen had not progressed very far before operators conceived this ideal situation, though it was some years before methods were perfected, and even today it is safe to say that few, if any, surgeons have attained this ideal.

The study of the literature reveals that before 1890 various clinicians had observed the frequency of spontaneous peritonization as a result of chronic pelvic peritonitis. This was noted by Quénu,[1] Amann [2] and Snegireff [3] in 1899, although Bardenhauer and Bliesener [4] had noted it as far back as 1891 and 1896. Amann put into practical application the idea of covering raw areas by the approximation of peritonized organs, using in 1900 the sigmoid flexure and the bladder and transplanting peritoneum by undermining and sliding wide layers from the anterior abdominal wall and from the bladder. Duret in 1899 and Judet [5] in 1902 finally established as a principle the using of a peritonized organ to cover the raw surface of other organs or pelvic walls, though Snegireff in 1899 really devised what Buettner [6] has called "high peritonization." From 1900 on, progress in this method of peritonization gained rapidly on the European continent, though it was not taken up so readily by surgeons in the British Empire or America. As far back as 1898, Kelly [7] used the uterus to fill a defect in the torn rectum, and Dudley [8] later described the shortening of the posterior culdesac by stitching the anterior surface of the sigmoid flexure to the posterior wall of the uterus. In all these early procedures, however, drainage was consistently employed through the abdominal wall or through the vagina, and usually by both routes at the same time. Rouffart-Hénault [9] peritonized the pelvis after abdominal hysterectomy by drawing the peritoneum of the upper pelvis together by a sort of purse-string suture, the lower pelvis having been tamponed with gauze leading out through the vagina, while drainage above this plane of peritonization led out through the abdominal wall. This required extensive mobilization of peritoneum on all sides of the pelvic walls except the posterior, and took in such structures as the rectum, sigmoid flexure, the cecum or the bladder as might prove to be necessary in order to approximate peritoneal edges. In the modern application of this idea not only is drainage not necessary, but we know, on the contrary, that it makes for postoperative adhesions. Yet as recently as 1916, Chaput [10] maintained drainage in his *cloisonnement* procedures, which partitions the pelvis in four ways: first, *cloisonnement transversal;* second, *cloisonnement susvaginal;* third, *cloisonnement vertical postérieur;* fourth, *cloisonnement vertical antérieur.* According to Buettner, Frank performed the first so-called high peritonization in 1881 after a case of cesarean section by the Porro method, and later applied the same principle to operations for pelvic inflammation.

Fig. 2.—The uterus has been partially extirpated with the fallopian tubes. The ovaries have been suspended to their respective ligaments. Closure of the raw pouch of Douglas is being effected by stitching the appendices epiploicae of the sigmoid flexure along the free edges of the approximated ligaments. (Reproduced by courtesy of the W. B. Saunders Company.)

In 1898, Kelly described four positions which may be regarded as the normal attitude of the sigmoid flexure, and he later suggested that if laid over the raw pelvis in one of these positions it might become spontaneously adherent, thus blocking off the lower raw pelvis from organs high up and preventing adhesions. In 1911 Summers [11] described an operation whereby the pelvis is peritonized after hysterectomy, by the sigmoid flexure, a procedure which he had used for twelve or fourteen years previously with or without drainage, and which is based on the ideas already set forth. Webster [12] removed the diseased swelling and entire uterus with the exception of its anterior peritoneal layer, which was left continuous with the broad ligaments. This flap extending across the pelvis was turned backward and stitched to the rectum and posterior pelvic wall. Soon after describing this method, however, he abandoned it for the simpler sigmoid-rectal peritonization which has remained his routine procedure.

In my opinion it is freedom of the ileum in postoperative involvement that is most desired, since it is involvement of the ileum that is the cause of the most distress on the part of the patient. It is true that intestinal obstruction may take place as a result of sigmoid flexure involvement, though this is more commonly the case where malignancy exists than in inflammation. When the ileum is already involved in the

1. Quénu: Bull. et mém. Soc. de chir. de Paris **29**: 778, 1903.
2. Amann, J. A.: Congrès. internat. de Paris, 1900, Comp. rend., Sect. de gynéc., p. 435.
3. Snegireff: Rev. de Chir., 1899, p. 249.
4. Bliesener: Monatsschr. f. Geburtsh. u. Gynäk. **4**: 28, 1896.
5. Judet, H.: Thèse de Paris, 1902.
6. Buettner, O.: Bull. Soc. d'obst. et de gynéc. de la Suisse Rom. (Gynelog. Helvet. **16**: 13).
7. Kelly, H.: Operative Gynecology **2**: 20, 1898.
8. Dudley, A. P.: Am. J. Obst. **24**: 952.
9. Rouffart-Hénault, L.: Thèse de Bruxelles, 1910.
10. Chaput, H.: Ann. de gynéc. et d'obst., November-December, 1916; Bull. Soc. anat. de Paris, October-November, 1894, No. 23.
11. Summers, J. E.: Surg., Gynec. & Obst. **13**: 135, 1911.
12. Webster, J. C.: Diseases of Women, 1907, p. 234.

inflammatory process it must, of course, be freed, and peritonization of its raw surfaces is best effected by omental or peritoneal transplants, since the ileum must be capable of perfect freedom. The same, however, is not true of the sigmoid flexure, which appears to function quite as well when there is at least relative immobilization; hence the surest way to keep the ileum out of the pelvis is to block off entirely the true pelvis. This blocking off is best brought about by the use of the lower portions of the large intestine, the sigmoid colon and rectum being used alone, or with the cecum on the right side after the appendix has been removed. The infiltrated and raw areas so often present on the sigmoid, rectum and cecum are rolled under by the same procedure. In 518 cases of pelvic peritonitis in which careful notation was made of the findings at operation, the sigmoid was involved in greater or less extent 274 times; its walls were infiltrated 124 times, and in three cases showed necrotic areas. The rectum was involved 387 times; its walls were infiltrated 199 times and perforated three times. The cecum was adherent sixty-seven times, and its walls were infiltrated twenty-one times. The bladder was adherent, usually to the uterus, in 149 cases, with infiltrated wall in twenty-four cases; but in ten cases the adhesions were to the sigmoid flexure and in three to the cecum.

Instead of trusting to the sigmoid flexure to become adherent, as Kelly suggested, its adhesion is brought about directly, and the place where it is to become adherent is definitely determined. The technic is best described if we suppose a case of generalized peritonitis due to a bilateral salpingitis in which the tubes and the uterus have been removed, the ovaries remaining in situ. If the sigmoid flexure has been adherent over the uterus and appendages, it is freed except for its attachment to the left pelvic wall. After the removal of the affected organs and the ligation of all bleeding points, the sigmoid is allowed to fall back over the true pelvis so that all raw areas are covered. The round ligaments have been stitched previously into the cervical stump or over the vaginal vault as the case may be, a procedure which in itself brings the clean peritoneal surfaces of the upper pelvis lower down and closer together. Beginning at that point where the peritoneal coat of the sigmoid is reflected from that of the pelvic wall, a light continuous catgut suture is started and is carried along just above the line of the raw tissue on the pelvic wall and just above the corresponding line on the sigmoid flexure as far as the left round ligament. Here the reflected flap of peritoneum belonging to the bladder is picked up and united with the sigmoid flexure across the center of the pelvis until the right round ligament is reached. From this point on the right pelvic wall and the sigmoid colon are brought into peritoneal approximation as was done on the left side until the shelf of the pelvis is reached, by which time the suture passes from the sigmoid to the rectum and is continued, uniting the rectum with the posterior peritoneum as far as the point where the rectal peritoneum is reflected, approximately just to the right of the promontory of the sacrum. It is extremely important that these posterior peritoneal surfaces be approximated, otherwise a hole would be left through which a coil of the ileum might prolapse into the lower pelvis. In following this method it is seldom necessary to put very many stitches into the intestinal wall itself since the appendices epiploicae are usually abundant, and these fat tabs are ideally placed for this method of peritonization. Only when they are absent as a result of extensive inflammatory involvement of the colon itself does it become necessary to stitch directly into the intestinal wall. Further, in order to come out on the right side of the rectum at a point where this suture ends, it will be necessary to rotate the sigmoid flexure one-half or less on its axis.

Fig. 3.—Closure of the pouch of Douglas is completed, the suture being carried around to the right until the rectum and posterior pelvic peritoneum have been approximated. (Reproduced by courtesy of the W. B. Saunders Company.)

This rotation is best accomplished in the midpelvis, where the vesical peritoneum is brought into use, since here flexibility of the peritoneal structures is the greatest, and hence there will be less tension.

In the great majority of cases the sigmoid flexure is large enough to accomplish this purpose. Only rarely and exceptionally is it so short that it cannot be used in this manner. In 518 abdominal operations for pelvic peritonitis, I found the sigmoid flexure absent but once. Only rarely is it not sufficiently long to cover unusually extensive raw areas, such as are formed when the anterior culdesac is involved together with the posterior in the inflammatory process. Here the cecum may be used to close over the right side of the pelvis while the sigmoid covers its left and center. While typically employed after hysterectomy, this type of peritonization is quite as effective in covering raw areas when the uterus remains in toto or when it has been decreased in size by fundal amputation. In a series of 543 cases that have been carefully tabulated from May, 1913, to May, 1921, sigmoid—rectal peri-

tonization has been done 359 times. In addition to this, the rectum has been used for partial peritonization sixteen times. The method has been used after total hysterectomy thirty-two times; after subtotal hysterectomy, 122 times; after fundal amputation of the uterus, 180 times; with round ligament shortening, three times; and without hysterectomy, five times. The sigmoid was brought up over the bladder twenty-four times, and the cecum was brought in to cover the right pelvic wall twenty-eight times.

In connection with this, omental graft to cover infiltrated areas on the ileum was employed twenty-eight times. In the great majority of these operations, indication lay in pelvic peritonititis; but in twenty-five cases, sigmoid flexure peritonization was found useful after operation for uterine fibroma, uterine carcinoma, tubal gestation and ovarian cystoma.

30 N. Michigan Ave.

Fig. 4.—The uterus and diseased appendages have been removed. The anterior and posterior culdesacs were raw after the freeing of the adhesions and have been entirely closed over. The sigmoid flexure has been approximated with the right pelvic and lower anterior abdominal wall; the cecum, after removal of the appendix, has been approximated with the left pelvic and lower abdominal wall, the line of suture being carried downward and posteriorly between the cecum and rectum and posterior pelvic peritoneal surface. Thus the entire pelvis is blocked off from the abdominal cavity. (Reproduced by courtesy of the W. B. Saunders Company.)

ABSTRACT OF DISCUSSION

DR. CARL B. DAVIS, Chicago: Every one who opens the abdomen should be thoroughly familiar with this technic. The procedure is more valuable in women than in men. It is occasionally useful in end-to-end anastomosis of the large intestine. But its chief value is following infections of the female genitalia. Adhesions of the uterus to the anterior or posterior culdesac leave raw spaces, and many patients require secondary operation for postoperative obstruction. The mortality is terrific. A procedure of this sort will obviate many of those cases. Dr. Culbertson spoke of the ease with which the sigmoid can be moved in most cases. I have seen cases in which the sigmoid was so firmly attached that it was with great difficulty that it could be mobilized enough to obtain this result. Many times the mesosigmoid is so short that it is difficult to put it up even for a colostomy. In these cases mobilization of the ascending and descending sigmoid is helpful. I recall the case of a woman whose tubes had been removed. The sigmoid was brought back over the right broad ligament and the culdesac was closed. Several years later the patient returned with a tumor of the ovary the size of a grapefruit. The sigmoid had gradually dropped down over the fundus and covered the inflammatory area, but still retained enough motility not to cause pain. If the sigmoid will move and we can cover over the raw surface, if these things will act as a temporary check while scarring is taking place, and adhesions of the ileum are prevented, it is very much superior to the stitching of the omentum. Following in these cases there is often distress each time the stomach is filled. As the stomach fills and starts to pull there is the tug coming from those adhesions.

DR. CAREY CULBERTSON, Chicago: I want only to emphasize the fact that drainage is not necessary. In these cases abdominal drainage was employed but three times. In forty-eight cases vaginal drainage preceded the abdominal operation. One of these was twenty years prior, one six months prior, and the rest only a few weeks or days prior. In but forty-six cases, therefore, was it deemed necessary to drain pelvically in preparing the patient for the abdominal operation. As regards the question of mobilizing the sigmoid, I never free the sigmoid from the left pelvic wall, except sufficiently to get at the diseased tube, leaving the sigmoid adherent to the left pelvic wall. In but one case of this entire series was the sigmoid flexure absent. As regards the function of the sigmoid after this procedure, I have been asked many times by men who have seen me do this operation whether there was postoperative distress or constipation. I have not found this to follow, nor do I see why such results should follow. As regards the omental adhesions, the omentum, of course is very frequently adherent when the abdomen is opened. Unless the adhesions are extremely light I never tear the omentum free. If fixed densely, I always resect it, peritonizing the raw edge of the omentum and leaving its densely adherent portion wherever it may be attached, since we want no better peritonization than that gives.

Duties of Health Officer.—It is not to be expected that the members of appropriating or law making bodies, such as boards of estimate and city councils, will be conversant with modern health practice; it is to be expected that many persons holding such offices will have inherited many health traditions which are false or misleading. It is, therefore, not only a duty but a matter of self-protection for the health officer thoroughly to inform the members of his health board and of the local authorities not only what health work should be undertaken and at what cost but also what kinds of work already imposed or which threaten to be imposed are ineffectual from a health standpoint or not properly a part of health work.—*Health News* **15**:303 (Dec.) 1920.

STANDARDIZATION OF THE WASSERMANN REACTION *

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The demand for standardization of the Wassermann reaction has come largely from clinicians who have observed marked discrepancies in the results reported by different laboratories testing portions of the same serum. Why should confidence be placed in the reaction under these conditions, which are sufficient for destroying all faith in its practical value? Is not a Wassermann test a Wassermann test irrespective of whom it is done by? For the majority of clinicians these appear to be logical questions, but they are very illogical to those who understand the test and know the many opportunities for error due to variation in the qualities of the biologic reagents employed, not to mention the element of the personal equation in relation to exactness in the technic.

In other words, there is no one way for conducting the Wassermann test. The original method is lacking in sensitiveness and has demanded improvement. To meet this requirement numerous modifications have been adopted, so that not a few experienced serologists have made changes here and there in the technic which, the clinician should realize and understand, may greatly modify the sensitiveness and practical specificity of the reaction. As I pointed out in a former communication,[1] the majority of these modifications are still known by most clinicians as the "Wassermann reaction," but the phrase has really come to be only a synonym for complement fixation in syphilis, frequently signifying something very different from its original meaning.

Such being the case, it is apparent that the mass of data accumulating on the value of the complement fixation test in different stages of syphilis can be only approximately correct, and that much of it is worthless and misleading. Furthermore, it is apparent that accurate and acceptable data, bearing on the influence of specific treatment on the reaction and the relative merits of different systems of treatment, are not possible under existing conditions. Dr. A, using the method of treatment advocated by Dr. B, is liable to observe serologic results different from Dr. B's, owing largely to the fact that he or his serologist is employing a different method for conducting the Wassermann reactions and especially a different antigen in differing amounts. All experienced serologists know the tremendous influence exerted on the Wassermann reaction by this one reagent, not to mention numerous other sources of variation; for these reasons identical reactions with portions of the same serums tested in different laboratories could not be expected, and if reported would probably be received by experienced serologists with much skepticism.

* From the Dermatological Research Institute of Philadelphia, Dr. Jay F. Schamberg, Director.

* Read before the Section on Pathology and Physiology at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Kolmer, J. A.: The Use of the Phrase "Wassermann Reaction," Am. J. Syph. 4:166 (Jan.) 1920.

THE ADVANTAGES AND DISADVANTAGES OF STANDARDIZATION

If serologists could reach an agreement on a standardized technic of superlative merit, this would solve the present difficulties and gradually strengthen or regain the confidence of the profession in a reaction that is basically sound and of proved merit. At least four distinct advantages would be gained: (1) a wider use of the test for the diagnosis of syphilis, which could not be otherwise than helpful for the diagnosis, control and treatment of this disease; (2) the accumulation of data of greater scientific value bearing on the practical value of the test in the different stages of syphilis; (3) a general improvement in the value of the reaction as a serologic guide to therapy, and (4) a means for comparing different methods of treatment according to their influence on the reaction, which would tend to aid in the crystallization of our knowledge in this field.

A possible disadvantage of adoption of a standardized test would be the stifling of further investigation; however, so much is as yet unknown regarding the mechanism of the reaction, and there are so many different ways of doing the same thing, that this is scarcely to be expected as a result, so far at least, as concerns those serologists who are capable of conducting meritorious investigations in this field. I doubt whether any serologist or group of serologists would have the temerity to advocate a certain technic as a "cure all" or as constituting the final word in the subject. The advantages mentioned above could probably be gained, and still leave and demand continued investigation and further improvements. In my opinion, the adoption of a standardized technic would probably actually stimulate investigation and, by focusing attention on a certain technic, bring out its merits and demerits to the general improvement of the complement fixation test, not only for syphilis but also for other infections.

THE AUTHOR'S INTERPRETATION OF STANDARDIZATION

Possibly the easiest way of standardizing the Wassermann test would be to adopt the original technic with a change in the antigen. But such a proposal would receive little recognition, not only because the original technic is defective in sensitiveness but also because the antigen is the greatest single source of contention and disagreement.

In my opinion "standardization" does not mean the adoption of any of the present methods, but a real, earnest and unbiased study of different methods and of each and every phase of the complement fixation test, for the purpose of determining by actual trial what is best and incorporating the facts into a test which will have for its purposes the establishment of a technic (1) of superlative sensitiveness; (2) of practical specificity; (3) of technical accuracy and uniformity of results; (4) yielding a true quantitative reaction; (5) as simple, and (6) as economical as possible.

THE CHANCES OF SUCCESS IN STANDARDIZATION

If these are acceptable as the requirements of a standardized test, what are the chances of its general adoption? Bearing in mind the difficulties besetting

V. 7
1921

the work of Dreyer and his associates in the standardization of the typhoid-paratyphoid agglutination test, which has been a far simpler task than standardization of the more complex complement fixation technic, I believe that general acceptance will be both tardy and well contested. In the laboratories of the Army, the Navy and the Public Health Service, there is little or no difficulty. As a matter of fact, Colonel Craig's method is used in all army laboratories.

The majority of experienced serologists learn to place confidence in the test which they have used and naturally give it up for another technic with great reluctance. Furthermore, a new test is not likely to yield its best results until experience has been gained with it. On the other hand, it may be said that practically all serologists agree that the general adoption of a uniform technic for routine work has distinct advantages, and they are at least willing to give a new test a fair and unbiased trial. More cannot be expected, and the success of a new test proposed as a standardized technic must depend on how it fares in the crucible of experience. If the published experiences of serologists in general with the new test are favorable, it is to be hoped that ultimate success in the adoption of a standardized test may be realized.

THE AUTHOR'S INVESTIGATIONS

With a full realization of the difficulties of the task and the slight chances of success, with a corps of assistants I began a series of studies on complement fixation, 1916, for the purpose of investigating every phase and step of the test and the more important complement fixation methods, in order to bring out by actual trial what was best in principle and practice for incorporation in a new test.[2] Aside from interruptions caused by war activities, the work has progressed up to the present time and has enabled me to build up a new complement fixation test for syphilis.[3] I have not called this a "standardized test" because only future experience can determine whether or not it deserves that designation; but the test is based on studies in the standardization of the Wassermann test which have been conducted as thoroughly and honestly as we knew how to conduct them, and without bias or preconceived ideas. Doubtless the work would have been better done by a commission, as the stamp of approval of a group is always better than that of a single individual, and justly so; but the difficulties of getting something done or at least started were so great that this idea was abandoned. I hope that our work and my new test will merit some degree of attention, and that the latter at least will receive a fair and unbiased trial by serologists; if the test has the merits which our work indicates, it is to be hoped that it will constitute a fair start toward standardization of the complement fixation test for syphilis.

QUALITIES OF THE NEW TEST

The new test has aimed to fulfil the requirements of a standardized test, mentioned above. I may state that our primary aim was to evolve a more sensitive test for syphilis than any of the present methods and at the same time one possessing practical specificity and freedom from nonspecific reactions. Raw or unheated serum tests are generally acknowledged more sensitive than tests employing heated serum, but they suffer from the drawback of being more liable to yield nonspecific reactions. My new test is intended to yield reactions just as sensitive as these in raw serum tests, but free of this objection.

I believe the majority of serologists will agree with me that the kind and the dosage of extract employed as antigen have a tremendous influence on the Wassermann reaction. For this reason, we have given the subject of antigens particular attention, which has led to the building up and adoption of a new extract of superior properties. Under ideal conditions, a central laboratory should titrate all antigens in addition to the titrations made by the maker, or the central laboratory could send out a standard serum or antigen for purposes of titration. I have worked out a technic which is proving satisfactory for these purposes.[4]

Briefly, the new test is intended to meet the requirements of a standardized technic, mentioned above, all of which are discussed in more detail elsewhere:[3]

A. *Meeting the Requirement of Sensitiveness.*—By: (1) using a highly sensitive antigen; (2) using relatively large amounts of antigen; (3) using relatively large amounts of serum and spinal fluid; (4) heating serums for only fifteen minutes at 55 C.; (5) using a mixture of guinea-pig serum complements prepared in a manner tending to increase sensitiveness to fixation; (6) mixing serum and antigen for a brief period before the addition of complement; (7) using a primary incubation of from fifteen to eighteen hours at from 6 to 8 C.; (8) by close adjustment of the hemolytic system adjusted to cold primary incubation; (9) by using an antisheep or antiox hemolytic system; the test may be conducted with an antihuman system, but is not as delicate as with an antisheep system; (10) by reading the reactions within three hours after the conclusion of the secondary incubation.

B. *Meeting the Requirement of Practical Specificity.*—By: (1) adustment of the hemolytic system to cold primary incubation; (2) adjustment of the dose of antigen to cold primary incubation, and (3) using numerous controls.

C. *Meeting the Requirements of Technical Accuracy and Uniformity in Results.*—By: (1) adoption of the principle that pipetting relatively large amounts of fluid (from 0.2 to 1.0 c.c.) tends to greater accuracy than measuring smaller amounts (less than 0.2 c.c.); (2) using a total volume of 3 c.c., with sufficient corpuscles and test tubes of suitable size to yield clear, sharp and easily read reactions; (3) using a reading scale furnishing hemoglobin in solution and nonhemolyzed corpuscles in proper portions.

In regard to uniformity in results, it must be emphasized that the anticomplementary activity of serum or spinal fluid is very important in relation to reactions. For this reason, tests conducted with portions of the same blood in different cities or even in the same city, cannot be expected to yield absolutely similar results if serologists vary in their methods of preserving blood until the tests are conducted. Serologists working in the same or different laboratories with portions of the same blood should agree on the ques-

2. Series of thirty-two papers being published in the American Journal of Syphilis, beginning 3:1 (Jan.) 1919.

3. Kolmer, J. A.: A New Complement Fixation Test for Syphilis Based Upon the Results of Studies in the Standardization of Technic, Am. J. Syph., to be published.

4. Kolmer, J. A.: Methods of Establishing a Uniform and Standardized Unit of Antigen, Am. J. Syph., to be published.

tion of positive or negative reactions. Slight variations in the degree of positiveness may occur when serologists are working in different laboratories, but these do no harm as long as the primary question of whether a serum does or does not yield a positive or negative result is solved, and particularly with serums yielding borderline weakly positive or doubtfully negative reactions.

D. *Meeting the Requirement of a Quantitative Reaction.*—This has been accomplished by employing a series of dilutions or doses of serum or spinal fluid. Extensive trials have shown that five doses (six tubes, including the serum control) are sufficient and a method has been worked out whereby these may be prepared rapidly and accurately.

By using only the first (largest) amount of serum or spinal fluid, the test becomes a qualitative one, like other methods in present use, should any one wish to shorten the technic.

E. *Meeting the Requirement of Economy.*—This refers to both time and materials. From the standpoint of time required the new test cannot claim to be more economical than present methods because it is not a short cut method, but from the standpoint of economy in materials it easily qualifies.

F. *Meeting the Requirement of Simplicity.*—Simplicity is only a relative term, as the simplest technic is a complicated problem for the inexperienced and insufficiently trained worker, whereas a more complicated technic is perfectly simple for the experienced serologist.

CONCLUSIONS

I feel quite sure that my new test will be simple for those who have had some experience in conducting complement fixation tests. It will be difficult for the untrained; but this is probably true of all methods, and the attempts of the untrained to do the work is largely responsible for the unfavorable impression created by the Wassermann test in numerous localities and on numerous occasions.

I can only bespeak the cooperation of serologists and ask them to give the new test a fair and unbiased trial for the purpose of gradually adopting a technic which the majority of serologists can subscribe to as being worthy of adoption as a standardized complement fixation test for syphilis. At the present time we are engaged in extending the investigations into the field of complement fixation in bacterial and other protozoan infections and for the differentiation of proteins along the lines developed for complement fixation in syphilis.

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ABSTRACT OF DISCUSSION

Dr. John M. Blackford, Seattle, Wash.: About three or four months ago, on account of marked variations in technic of different laboratories, we instituted another of these numerous investigations of the results on the same blood in different laboratories. Seven laboratories cooperated, and the variation was remarkable. We selected twenty-five cases with a positive history or questionable Wassermann reaction. The low laboratory had five strong positives, the high laboratory twelve; there were several cases in the series which were doubtfully syphilitic and several definitely nonsyphilitic. This paper from the standpoint of the clinician is really epoch-making, and if this new technic will work out as well as it sounds it will be a tremendous advance over what we now have. Our men have agreed to get together and try to standardize and run a standardized technic, and we look forward with a great deal of interest to the results.

Dr. A. I. Rubenstone, Philadelphia: I am very much interested in Dr. Kolmer's work in an attempt to standardize the reaction, because we have long felt the need for some standard method of performing the Wassermann test, especially those of us who have the trouble of checking up the work from other laboratories. There is one point we ought to take into consideration in reference to standardizing a test like the Wassermann, and that is to caution against following an outlined, cut and dried technic, as it would then bring about a condition among inexperienced workers in the field whereby the test would become an automatic one. The Wassermann test cannot be done on a cut and dried basis. The personal element is a very important one. We can adopt a standard technic after it is carefully worked out, and use it as a control to the method already familiar in the laboratory. I cannot lay too much stress on the personal element concerned in the various details of the technic as a more sensitive reaction, for example, may be obtained by gaging the units of the Wassermann test more closely. I have been able to change the sensitiveness of the test by simply varying my units of complement. I am quite sure that the Wassermann test can be made as closely sensitive by varying this element alone as by the modifications that have crept in during the last few years, complicating the technic and making for greater confusion in standardizing the test.

Dr. M. G. Wohl, Omaha: We are in the same position in the West as Dr. Kolmer and other serologists are in the East, the clinician blaming the pathologist either for getting too many negative reactions in cases which he considers specific, or for obtaining false positives. This is to be attributed partly to the nature of the test, and partly to the clinician's interpretation of the case on hand. It is true that negative laboraory findings are encountered in a certain percentage of clinically known syphilitic cases. To obviate this error many a serologist has endeavored so to modify his technic as to increase the percentage of positive reactions; hence the well known Hecht-Weinberg modification, the cholesterinized antigen, etc. Each of these modifications has its disadvantages. There are comparatively few conditions in which a false positive may be obtained, as tuberculosis, giving a cross-fixation, or in an extremely toxic state. We find in these cases that it is unusual to obtain a four plus, and the latter reaction at least in this part of the country in our experience has spelled nothing but syphilis. To diminish the number of negatives in known syphilitics, my associate, Dr. Isaacson, and I have been using the icebox method simultaneously with the conventional water-bath method. The technic of our water-bath method has closely followed that of Dr. Kolmer, using three antigens: cholesterinized, alcoholic and acetone insoluble. In the icebox method we have found it best to use the plain alcoholic antigen, and also a pooled complement. Too much emphasis cannot be laid on the use of the proper dosage of reagents as found in a careful titration at the time the test is being set up. We have made a parallel study of more than 1,700 tests. When the serum resulted in a four plus, both methods closely agreed. The discrepancies were noticed between the one and two plus. In cases of neurosyphilis, cerebrospinal syphilis or tabes dorsalis, when the blood resulted in a negative with the water-bath method, the icebox method gave a one or two plus in a large majority of the cases. In treatment cases we likewise found a stronger reaction, that is, a four plus with the ice-chest, where the incubation was one or two plus, or a one plus strong with the icebox where the incubation was negative. In the chancre stage the icebox method is distinctly advantageous, as we are more apt to get positive reactions, while the water-bath method may prove absolutely negative. We have found the icebox method satisfactory as it helped us to do away with the so-called plus minus, the reaction being more clear-cut, either negative or positive. By using both methods simultaneously one has an additional check on his own technic. It is to be regretted that very few clinicians know how to evaluate laboratory tests. The Wassermann cannot possibly make the diagnosis for the clinician, particu-

larly when the reaction is not a clear-cut one. By closer cooperation between clinician and serologist, the test will assume a greater significance.

DR. A. J. CASSELMAN, Camden, N. J.: I do not feel that standardization of the method of performing the reaction is feasible because of the lack of the necessary equipment in many laboratories. Suppose my preference, icebox fixation, were the standard. Many laboratories are without efficient iceboxes; therefore that important detail would be missing and the method would not be standard. In most laboratories the workers must adapt themselves and their methods to the circumstances of equipment. Most laboratories are poorly equipped and therefore cannot follow rigidly the best method. What is needed is a careful comparison of the results obtained by the different methods. The work should be viewed from the standpoint of what the clinician sees, merely the report. The clinician wants a report which he can evaluate. This could best be attained if all laboratories were equipped with the apparatus and personnel to adopt some proper standard method. Standardization of the method was not successful even in army laboratories in France. The best point in their system was the general use of one standardized antigen. Excellent results were obtained in most army laboratories until about November, 1918, when the standard of the antigen was lowered by a change in personnel in the laboratory which supplied the antigen. This weak antigen would not give positive results even with some cases of untreated secondary syphilis. All such cases gave strongly positive results with the ordinary reliable antigens. If all workers had accepted the system blindly, a much greater number of serious mistakes in diagnosis would have been made. I am very much in favor of having a central laboratory send out a standard antigen for civil laboratories, but caution is necessary to prevent repetition of the mistakes made in France. The purity and relative amounts of cholesterol and heart extract must not vary, as with small amounts of added cholesterol the antigens work best when diluted slowly, while with the cholesterol in excess the ratio of antigenic to anticomplimentary value is higher with rapid dilution. The antigen is the most important element, and is capable of being standardized to a relatively high degree. The results can be standardized by comparing quantitatively the results obtained by various methods instead of requiring all laboratories to adhere to the same method.

DR. JOHN A. KOLMER, Philadelphia: The question of influence of dilution of complement on complement fixation reactions is one of fundamental importance and has commanded a great deal of study in our investigations. In my new test, complement is used diluted 1 : 30 with antisheep and antiox systems, but with an antihuman system it is diluted 1 : 10 because of the impossibility of producing as highly potent antihuman hemolysin. Best results have been observed with the antisheep and antiox systems, and I believe this is partly owing to the use of higher dilutions of complement. We are convinced of the superlative merits of the icebox method of primary incubation, but have arrived at this conclusion with some reluctance because it means extending the time required for conducting the tests. This subject has demanded a great deal of study from the standpoints of influence on complement destruction, nonspecific fixation by antigen and serum alone and specific fixation. It is absolutely essential to use a hemolytic system adjusted to cold incubation, but under these conditions experiments have proved that specific fixation is greatly increased by incubation for eighteen hours at 8 C. This is even more striking in bacterial complement fixation reactions. In all of our work we have used the serum of syphilitic persons in dilutions for the purpose of studying the sensitiveness of reactions rather than depending on the serum of persons of whom there may be differences of opinion among clinicians regarding the presence or absence of syphilis. Probably the most important single subject in this investigation has been that of the antigen. Our studies have evolved a new extract which has proved very satisfactory. We have also worked out a technic for establishing and maintaining a unit and dose for complement fixation tests analogous to the methods for establishing units of diphtheria and tetanus antitoxins.

PUBLIC HEALTH AND PRIVATE PRACTICE*

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Health service is essentially for the prevention of disease. Medical service is essentially for the cure of disease. Either may be conducted as a public or as a private enterprise.

In some instances, the cure of a case of infectious disease in one person is the most practicable means of preventing such disease in other persons. The cure of a slight ailment in a person may be the most practicable means of preventing a serious ailment in that person later on. As a sharp line of demarcation cannot be drawn invariably between measures for prevention and those for cure, it is natural, at times, for some confusion or even conflict of opinion to occur as to the respective duties, rights, prerogatives and perquisites of the health service and of the medical service of a community. In some instances of controversy between private practitioners and public health departments, either side, owing to factors of personal equation, may be at fault; but, in practically every instance in which such controversy is based on principles of procedure, no difficulty would be encountered in reaching a conclusion about the right course if consideration were given only to the public interests, as paramount.

PRIVATE INTERESTS VERSUS PUBLIC INTERESTS

If, in a community with actual or potential intelligence, an open conflict develops between the special interests of the private practitioners of medicine and the general interests of the public, the eventual result of such conflict readily may be foreseen. In the United States, the licensed private practitioners of medicine constitute less than one eighth of 1 per cent. of the population.[1] As the practicing physicians are a part of the public, the public interests are to a certain extent their interests. Though the physicians, through organization and adroit maneuvering, might obtain temporary advancement of their interests over those of the unorganized majority of citizens, whom they are supposed to serve, it would be hardly intelligently selfish for them to do so, even if their code of ethics permitted.

From the point of view of the public interests, these are momentous times in our country. The lessons of the war and the stress of the present period of reconstruction appear to have created a national consciousness that scrutinizes carefully many affairs which, a few years ago, received little or no attention from any considerable proportion of our people. Because of this community vigilance, it is likely that, from now on, any enterprise, private or public, not conducted according to the motto "The Public Be Served" will be exposed to increasing risk of being put out of business.

PAST AND FUTURE OF MEDICAL AND HEALTH SERVICES

Practice of the healing art is as old as recorded history. Public health work is, according to our present conception of it, a development of recent times—largely of the last twenty-five years.

* Read before the Section on Preventive Medicine and Public Health at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

1. Billings, Frank: The Future of Private Medical Practice, J. A. M. A. 76: 349 (Feb. 5) 1921.

The fact that the private practice of medicine as an institution has survived for ages indicates that it has adjusted itself to changing conditions so as consistently to furnish a service desired by the public. Had it not so made itself fit to survive, it would have gone ere now the way of witchcraft and autocracy. What its progress or its retrogression in the future is to be depends on the degree and kind of adjustments it may make to furnish the service needed and demanded by the public.

In the program of general welfare for which the popular demand is becoming more and more acute, there is developing throughout the country, at an increasing rate, an intelligent conception of the relative and absolute importance of service for the conservation and the promotion of the public health. Thus public health service, a development of recent times, appears in line with present and coming conditions, looming large with wonderful possibilities.

The increasing popular demand for service both to prevent and to cure disease furnishes an unprecedented opportunity to the medical profession. Will the medical profession measure up to this opportunity? Its history, rich with noble deeds nobly done to lighten the burden of grief and suffering of humankind, warrants the belief that it can and will.

NEED FOR ENLARGED MEDICAL AND HEALTH SERVICES

There is now in the United States a shortage of medical service. Such a shortage is critical in many of our most important food-producing rural districts. Though real progress is now being made in the establishment of local health service, there is, in the United States—and especially in our rural districts—a woful shortage of trained and qualified public health workers. Thus, with the large field available for health service and medical service, and with the workers in it too few, no business excuse exists for rivalry or wrangling between our private practitioner of medicine and our public health worker. The public interests demand team work from them, and whatever can be done should be done in order to have effective economical service delivered in this vitally important field of activity for the welfare of the people.

OPPOSITION OF PRIVATE PRACTITIONERS TO PUBLIC HEALTH WORK

The majority of private practitioners of medicine, both individually and collectively (through their local, state and national organizations), endorse and promise to support public health work; but, in some instances, private practitioners, either as individuals or in groups, become the main objectors and obstructors to what appears, from the standpoint of the public interests, an entirely reasonable program of public health service in a community. As a rule, the reasons for the objections and obstructions are not far to seek. The difference between the private practitioner and the public health officer may be due to personal dislike of one another. Some private practitioner may want the position held by the public health officer. The health department may have had to proceed somewhat vigorously to bring about correction of insanitary conditions on properties occupied or owned by a private practitioner. Sad to relate—and this is a considered statement—grossly insanitary conditions, constituting a menace to the health and comfort of the community, are not nearly so infrequent as they should be at the homes of practicing physicians who are members "in good standing" of local, state and national medical associations.

More serious than the individual objections, based on personal grounds, are the organized objections, in some cases voiced by a majority of the local medical society, against some activity which the local health department, under the law, in the interest of the public, and perhaps originally with the unanimous endorsement of the local medical society, is required to perform. Usually the most vexatious difficulty with which the health department has to contend is the securing, from private practicing physicians, of reports of cases of communicable disease coming under their professional care. The prompt and complete reporting of known cases of communicable disease appears the very minimum of cooperation which the health department reasonably may expect from the attending physician. On the hypothesis that everything pertaining to the care of the private case comes strictly within the prerogatives of the attending private physician, some physicians object to proper activities of the health department to prevent spread of infection in cases of communicable disease in and from the homes to which they have been called to give medical care. Is such an hypothesis well founded? Is not the care exercised to prevent spread of infection from a case of communicable disease of importance to the whole community? If the health department is given, as one of its most important public responsibilities, the task of preventing the spread of infection, is it unreasonable for the public to expect the health department to prescribe and regulate the conditions under which the private practitioner—within his own professional judgment (of course)—may render private medical care to a case of communicable disease in the community? These are old questions, and the answers to them are quite readily apparent to any one with an intelligent point of view on public health; but we have with us now a problem of recent origin which in a number of localities already has become acute.

"HEALTH CENTERS"

This new problem relates to the management and operation of establishments called by various names, such as "public health clinics," "health centers," "community centers" and "community hospitals." Some, who for one reason or another are opposed to these establishments, ruthlessly refer to them as manifestation of the old bugaboo "state medicine." The conclusion is inescapable that the treatment of diseased teeth, the removal of diseased tonsils and adenoids, the rendering of prenatal care, the treatment of venereal disease to remove dangerous foci of infection, the diagnosis and treatment of tuberculosis, and the correction of certain eye, ear and other physical defects, are, whether given in the private office or the public clinic, for the prevention of disease and the promotion of health, and, therefore, may properly be regarded as service of a public health nature. The shortage in the rural districts of private practitioners, especially of skilled specialists in surgery and dentistry, has been an important factor in the development of the popular demand for "health centers." Many of our public health agencies have incorporated, in their public health programs, community clinics of one kind or another. If such clinics meet advantageously a public need, and are in line with the increasing popular demand for public health service, we might as well

recognize the fact that they have come to stay and that their number will increase; and, furthermore, that their establishment should be encouraged and aided by governmental agencies—local, state and national—concerned properly with the promotion of the general welfare. No insurmountable difficulties appear in the way of effecting a satisfactory basis of coöperation between practicing physicians and health agencies in rendering service through health centers and by other public health means for the promotion of the public interests.

THE OPPORTUNITY OF THE MEDICAL PROFESSION

The private practitioner of medicine, in having skilled service to offer to the public, has filled and may continue to fill a vitally important place in our body politic; but if, because of erroneous ideas about his special rights and privileges, he gets in the way of progress for the general welfare, he will be run over by the procession—and that would be an unthinkably sorry place for him, with his glorious heritage, to take in these moving times. Our doctors of medicine deservedly have a high place in the regard of our people. They are the counselors appealed to in the most critical periods of human life. It is within the power of the members of our medical profession to do more than any other group of persons of like number toward the establishment and maintenance of reasonably adequate health service in every part of the United States. The American Medical Association, with its approximately 80,000 members, has a tremendous opportunity to head up right the physicians of this country in this important part of the program for the national welfare. In many cases, the members of the association, it seems, may do more, individually, than they have been doing to teach by precept and example the facts of sanitation and of communicable disease control. The Section on Preventive Medicine and Public Health appears the logical section of the association to convey to the House of Delegates recommendations on principles affecting relations between medical service and health service.

Cosmos Club.

ABSTRACT OF DISCUSSION

DR. FRANK BILLINGS, Chicago: The chief function of a public health officer is the institution of measures of prevention of disease. The chief function of a practitioner of medicine is to attempt to cure disease. Medical practitioners deal with individuals in practice. They are, therefore, more or less individualistic in ideas. Public health officials deal with the mass of the population. If they deal otherwise, it is with the result that some individual or group of individuals may be a source of communicable disease which must be controlled. The dispute, which sometimes amounts to animosity between the members of the profession, those who practice medicine and those who engage in public health work, is due in part, I think, to the confusion growing out of the war. All of our people are confused as to what shall be done in the measures of reconstruction. Different bodies engaged in different sorts of work are opposed in opinion to what shall be done by other groups. We of the medical profession have a function to perform, an obligation to the public which should not afford difficulties in getting together and settling our differences. Public health work, of course, is one of the most important functions of welfare work. We have not enough public health officers. There are about 1,000 qualified public health officers, or one to 150 physicians. We are, of course, closely associated in health work. No public health officer can well do his work unless he has the cooperation of the private physician, nor can the private practitioner carry out the work for which he is responsible to every patient, unles he has the aid and assistance and cooperation of all public health officials. No public health work can be well done and efficiently done without this cooperation. We must preserve the full power of the public health official to deal with all measures of disease prevention. On the other hand, we must preserve the integrity of the medical practitioner—of the family physician. The domiciliary visitation is one of the most fundamental things in the practice of medicine; and without domiciliary visitation, public health work will fail.

DR. JULIUS LEVY, Newark, N. J.: There are groups of medical men who are scary about public health work, and while in their organization they favor the public health idea, those who are endeavoring to carry on definite pieces of work find there is a strong medical opinion which makes the work difficult. I think that is, however, partly the result of uncertainty on the part of medical men as to the nature of public health work; and to no small degree is it due to a failure fully to understand the work which is discussed under the name of health centers. The medical profession has never failed to give its full support to public health activities which have dealt with prevention of disease, and have left to the medical profession the treatment of disease. I feel that the distinction Dr. Lumsden made should be carried out very carefully, and then we would get rid of much of the difficulty with the profession. The trouble is that it is much easier for public health officials to deal with concrete diseases than to work out a program which will prevent disease. In New Jersey, in the management of our Baby Keep-Well stations, we do not permit the physicians to prescribe or treat diseases. We insist on their referring every diseased child to the family physicians. I think that is logical for many reasons. In the first place, the U. S. Public Health Service, the state health service, the local health service, can use all the money, time and energy that they can get in the prevention of disease. The day has not come when they have finished that problem, and when they need to go into the establishment of clinics and hospitals and dispensaries. While we admit that these things need to be done, they should be left to the medical profession or philanthropists or municipalities. And I feel very strongly that if we will keep that distinction very clear and prevent some nonofficial bodies from confusing the public mind as to what is public health work, we shall get a lot better cooperation from the medical profession.

DR. OTTO P. GEIER, Cincinnati: I am not so certain that it is for the betterment of preventive work to make so fine a line of distinction between the curative work of the general profession and the work of prevention by the health officer. The moment you do that you automatically bring on antagonism between these groups on economic lines. If disease is to be prevented, it has to be prevented by the profession at large and not by the relatively few health officers. There are only a thousand health officers. There are 80,000 physicians in the country who must be called on to do this work with their own patients. Prevention of disease is economically important. It is essential and must be carried on intensively and personally by the profession at large. The public health officer overestimates his ability to do preventive work. He needs the aid and full cooperation of the medical profession. The public health official will popularize his work among the Profession if he will teach the public to use the private physician more frequently. He must sell the idea of the use of the practitioner for physical examination and medical supervision as a means of preventing disease. If this is done, the antagonism Dr. Lumsden speaks of between the health officer and the profession will quickly disappear. The health officer must recognize that, after all, the success of the whole program of prevention of disease depends on the attitude of the public and the profession at large, and that it is finally the practitioner who must energize the problem of prevention. Lastly, it behooves the American Medical Association to have the largest concept of its responsibility to the public and the physician at large in the matter of prevention. The science of medicine is today perhaps from five to ten years in advance of its general application. The American Medi-

cal Association is giving the widest recognition to scientific advancement, but it is not, I believe, pressing as energetically as it might for the wider application and popularization of the knowledge already at hand.

DR. JOHN P. DAVIN, New York: Public health in medicine is a growth of twenty-five years. The founder of public health service in this country, Dr. Stephen Smith, of New York, laid down the first public health law, and that law stated that the rule of the sanitary physician should prevail over everything not provided in the statute nor laid down in the law. He gave unto a body of three men the power to abolish the civil law of habeas corpus, and he did this because at that time a man's house was his castle even though it was a center of pestilence. Dr. Smith did this to meet the inroads from other countries of typhus fever, cholera and other pestilential diseases. Who is it that has solved this question of public health? Who has made the American Medical Association of ultimate importance to the country? It is the private practitioner of medicine. We have handed over all these things to public health officials, and they are administering our estate. I ask you to be merciful. Be as just as you can, but be merciful. Do not ostracize us if we fail to report malaria sometimes, and do not condemn us in some other instances for not breaking the old and splendid rule of the inviolability of the patient's confidence. Do not put under the head of "communicable disease" such a thing as pregnancy, a classification which it is fast nearing in this country today. I do not think there is a private practitioner here in this body but me, and there were none here last year. Of course, I am always in the minority; but if I live long enough I shall find as I do at the present time, that the majority are coming along fast to the place where I am at. There is no difference between a public health official and a private practitioner. There is no essential difference, as a matter of fact, between the honest practitioner and the honest public health officer. The aim of every medical man is to prevent disease rather than to cure it. We talk about the public health official preventing it, and about the private practitioner curing it. But you are forgetting all about nature. You forget the tendency of the man to get well himself. If he has an infirmity, should you put him under a stigma today which ten years from now may not be regarded as such at all? Nature has a field of operation all her own, in which the private practictioner is as able to stimulate therapeutic action among individual patients as the public health official is among the masses of the people.

DR. LESLIE L. LUMSDEN, Washington, D. C.: The discussion is, on the whole, encouraging. Whatever objection has been offered I think was due to a misunderstanding. Any one who reads my paper and the resolution will see that it is very conservative, and I do not believe that many of us with the public health point of view can escape the realization that the passage of such a resolution may do much good.

Health Protection for Young Workers.—According to a report made by eleven physicians, and recently issued by the Children's Bureau, entitled "Physical Standards for Working Children," eighteen states have a law requiring children to be examined before going to work. However, unless examining physicians have definite standards by which to test development and sound health, underdeveloped and physically defective children are likely to go to work early to their own serious disadvantage, in spite of excellent laws intended for their protection. The committee, therefore, has undertaken to define what constitutes normal development and sound health for children applying for working papers. It also lists defects for which children should be refused certificates, remediable defects for which they should be refused certificates pending correction, and conditions requiring supervision under which provisional certificates for periods of three months may be issued. Periodic examinations for children after they have gone to work are recommended by the committee as a still further protection. As yet no state has taken this step, though good opportunities for putting into effect an adequate program of health supervision is furnished by the compulsory continuation-school laws now in force in twenty-two states.

EXPERIMENTAL INOCULATIONS IN SCARLET FEVER *

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In a comparative study of the bacteriology of the throat, blood and urine in uncomplicated scarlet fever, we have shown [1] that a variety of organisms found in the throat may enter the blood stream in small numbers, and may be excreted in the urine. The number of bacteria in the urine compared with the number found in the blood suggests that the bacteria sometimes multiply in the urinary tract.

Blood cultures from uncomplicated cases failed to reveal any organisms in large numbers, and no organism was found constantly enough to indicate a causal relation to scarlet fever.

Comparative complement fixation tests were made of the blood serums of convalescent patients in order to determine if possible where in the body of the scarlet fever patient the specific organism is present in greatest abundance. Complement fixation tests and cutaneous tests [2] failed to demonstrate any specific virus or antigen in the blood serum in early cases of scarlatina, or in extracts of the spleen or lymph glands in fatal cases. In one instance, the serum of a convalescent scarlet fever patient gave a weak complement fixation with an antigen prepared from scarlatinal throat mucus.

It was then found that cultures of the throat mucus in whey and in broth used as antigens gave positive results with 54.6 per cent. of the convalescent serums tested.[3]

From these results it seemed that the bacteriologic study of the throat promised more than that of the blood or tissues after death. Before going further with the complicated bacteriology of the throat, it was important to verify by inoculation experiments some of the conclusions drawn from the complement fixation tests. In all of the experiments reported here, we first inoculated ourselves with whatever variety of material was to be used in inoculating the volunteers. Both have had scarlatina, and the preliminary inoculations of ourselves were done to determine whether or not the material to be used had any pathogenic action other than the production of scarlet fever. The volunteers selected were healthy men and women between the ages of 18 and 35 years, who said that they had not had scarlet fever, and whose living conditions were such that it was possible for them, by following instructions, to avoid danger to others. Unless otherwise stated, each volunteer was observed fourteen days after inoculation.

INOCULATION EXPERIMENTS WITH BLOOD SERUM OF EARLY SCARLATINA PATIENTS

Following preliminary negative Wassermann tests, blood was withdrawn from the veins of four patients suffering uncomplicated scarlet fever shortly after the

* From the John McCormick Institute for Infectious Diseases.

1. Dick, G. F., and Dick, Gladys H.: J. Infect. Dis. **15**: 85-99, 1914.
2. Dick, G. F., and Dick, Gladys H.: J. Infect. Dis. **19**: 175-182 (Aug.) 1916.
3. Dick, G. F., and Dick, Gladys H.: **19**: 638-646 (Oct.) 1916.

onset of the disease, in one case just as the rash was appearing. The blood was allowed to clot and immediately centrifuged just enough to separate the serum. Within fifteen minutes after withdrawal from the patients, the supernatant blood serums were swabbed on the tonsils of four volunteers, one volunteer being used for each serum. Daily observations were made as to sore throat, fever, and rash on the skin or palate. No positive results were obtained.

Serums obtained in the same way from six patients with scarlatina were then inoculated subcutaneously into a series of six volunteers, one volunteer being used for each serum. The first of this series received 0.2 c.c. of serum; the second, 0.5 c.c.; the third, 1 c.c.; the fourth, 2 c.c.; the fifth and sixth, 5 c.c. each. Daily observations were made for local reaction, fever, sore throat, and rash on the skin or the palate. In each case, on the day following the inoculation, the site of the injection could be located only by the needle wound. There was in no instance a local or a general reaction.

INOCULATION EXPERIMENTS WITH WHOLE BLOOD OF EARLY SCARLATINA PATIENTS

Five cubic centimeters of citrated whole blood was withdrawn from each of five patients with scarlet fever and immediately inoculated subcutaneously into a series of five volunteers, each volunteer receiving the blood from one scarlet fever patient. Care was taken to prevent chilling of the blood. The results of these experiments were also entirely negative as to local and general reaction.

INOCULATION EXPERIMENTS WITH FILTERED THROAT MUCUS

A further study of the throat secretions in scarlatina was then undertaken. An attempt was first made to learn whether or not the disease is caused by a filtrable virus present in the throat in early cases.

Mucus swabbed from the throats of patients having early cases of scarlatina was shaken in a small amount of broth and filtered through Maasen or Berkefeld N filters. In order to prepare larger amounts of the material, other patients were given about 2 ounces each of sterile broth to gargle, and the gargled broth was filtered. In five cases the smaller amounts of filtrate obtained from the swabbed mucus were swabbed over the tonsils and pharynx of five volunteers, each volunteer receiving material from one scarlet fever patient. The larger amounts of filtrate obtained from the gargled broth of ten patients with scarlet fever were given to a series of ten volunteers to gargle immediately after filtering. No positive results were obtained in this series of fifteen inoculations with filtered throat mucus.

Following these negative results, six patients with scarlet fever were given bouillon to gargle and, after filtering, this bouillon was inoculated subcutaneously into a corresponding number of volunteers. Each volunteer received material from one scarlet fever patient. The first of the six was inoculated with 0.2 c.c. of filtered broth; the second, with 0.5 c.c.; the third, with 1 c.c.; the fourth, fifth and sixth, with 2 c.c. each. Daily observations were made for local reaction, fever, sore throat, and rash on the skin or palate. The three persons who received the largest amount of material showed a slight local redness and slight induration at the site of inoculation at the end of twenty-four hours. In two cases this had disappeared at the end of forty-eight hours. In one case the localized induration lasted four days. No positive results were obtained in this series.

COMPLEMENT FIXATION TESTS WITH BACTERIAL ANTIGENS

Forty-four strains of a variety of organisms were isolated from the throats of scarlet fever patients during the early stage of the disease. These organisms were grown in plain broth, or suspensions were made from the growth on solid mediums, according to the way in which the best growth of the individual organisms could be obtained. The broth cultures and the suspensions were heated at 60 C. during one hour; 0.5 per cent. phenol was added, and these preparations were kept in the refrigerator. Some antigens were discarded because they hemolyzed or turned brown the sheep's cells used in the tests. Others were discarded because of their anticomplementary action. No antigen was used in the tests in larger amount than one-fourth the highest amount which had no anticomplementary action. In this way, it was possible to use twenty-six of the forty-four bacterial antigens. These twenty-six were prepared from eight strains of hemolytic

TABLE 1.—RESULTS OF COMPLEMENT FIXATION TESTS WITH BACTERIAL ANTIGENS

No serums gave any degree complement fixation with scarlatinal skin scales antigen.
No serums gave any degree complement fixation with Wassermann test antigen.
37 serums gave some degree complement fixation with one or more streptococcus antigen.
33 serums gave some degree complement fixation with one anaerobic coccus antigen.
29 serums gave some degree complement fixation with one or more staphylococcus antigen.
19 serums gave some degree complement fixation with one gram-positive leptothrix antigen.
14 serums gave some degree complement fixation with one or more diphtheroid bacillus antigen.
12 serums gave some degree complement fixation with one gram-positive streptothrix antigen.

streptococci; three strains of streptococci which produced green before hemolysis; two strains of *Streptococcus viridans;* three strains of streptococci which did not alter blood; four strains of stapylococci; three strains of diphtheroid bacilli; one gram-positive leptothrix; one gram-negative, anaerobic coccus, and one strain of gram-positive streptothrix. The twenty-seventh antigen used was an alcoholic extract of scarlatinal skin scales. The twenty-eighth antigen was the acetone insoluble portion of an alcoholic extract of beef heart as used in the Wassermann test.

Blood serum was obtained from forty-three scarlet fever patients from the second to the forty-third day of the disease, the most during the third and fourth weeks. From a series of preliminary tests, it was learned that the active serum gives a higher percentage of positive results than the inactivated serum. In the later tests the active serums were used on the same day they were taken from the patients. Each serum was tested with all of the antigens. The results are given in the accompanying tables.

Two serums gave some degree of complement fixation with all of the antigens.

Two serums gave some degree of complement fixation with all of the streptococcus antigens.

The results of the complement fixation tests with bacterial antigens were not conclusive. Comparison of

the action of the same scarlatinal serums with the different antigens showed that the streptococcus antigen which gave the most positive results fixed complement with one more serum than did the antigen prepared from the gram-negative, anaerobic coccus. And the best hemolytic streptococcus antigen fixed complement with four more serums than did the best *Streptococcus viridans* antigen. The results indicated either a nonspecific immunity of varying degree, or specific immunity to a number of organisms; not always the same organisms in the different cases.

TABLE 2.—COMPARISON OF THE RESULTS WITH THE DIFFERENT STREPTOCOCCUS ANTIGENS

Hemolytic streptococcus antigen 22 gave some degree complement fixation with 34 serums.
Hemolytic streptococcus antigen 29 gave some degree complement fixation with 30 serums.
Hemolytic streptococcus antigen 2 gave some degree complement fixation with 24 serums.
Hemolytic streptococcus antigen 4 gave some degree complement fixation with 22 serums.
Streptococcus viridans antigen 17 gave some degree complement fixation with 30 serums.
Streptococcus viridans antigen 28 gave some degree complement fixation with 25 serums.
Streptococcus which produced green before hemolysis antigen 5 gave some degree complement fixation with 30 serums.
Streptococcus which produced green before hemolysis antigen 19 gave some degree complement fixation with 28 serums.
Streptococcus which did not affect blood antigen 23 gave some degree complement fixation with 29 serums.
Streptococcus which did not affect blood antigen 10 gave some degree complement fixation with 24 serums.

INOCULATION EXPERIMENTS WITH PURE CULTURES OF HEMOLYTIC STREPTOCOCCI ISOLATED FROM THE THROATS OF EARLY SCARLATINA PATIENTS

As hemolytic streptococcus antigens gave the highest percentage of positive results with scarlatinal serums, and because they are of frequent occurrence in the throats of scarlet fever patients, they were used in inoculation experiments made with pure cultures of living organisms.

Blood agar plates were made of the mucus swabbed from the throats of patients with uncomplicated scarlet fever within seventy-two hours, and in most cases within forty-eight hours, after the onset of the first symptoms of illness. From these plates the predominant type of hemolytic streptococcus was transferred to blood agar slants which were incubated from twenty to forty-eight hours before swabbing on the throats of volunteers. In a few instances inoculations were made from a second transfer; but in most cases, the volunteer received the hemolytic streptococcus within forty-eight hours after the material was obtained from the patient. Smears of the blood agar slants were relied on to determine the purity of the cultures.

In all, thirty volunteers were thus inoculated with eighteen strains of hemolytic streptococci, and then observed for sore throat, fever, and rash on the skin or palate. Of these thirty experiments, twenty-three were entirely negative. All were negative as to rash on the skin or palate. Seven of these thirty volunteers developed sore throat associated with fever and leukocytosis without rash. A brief description of these seven cases follows:

A woman, aged 21, was inoculated with a hemolytic streptococcus. On the second day following inoculation she complained of sore throat and general malaise without nausea. Her temperature by mouth was 100.2 F. The tonsils were swollen and the throat was hyperemic and a thin layer of grayish mucoid exudate was seen in the pharynx. The submaxillary lymph glands were enlarged and tender. On the third day, the temperature was 101.2 F. and the leukocyte count, 11,000. The throat condition was about the same. There was no rash on the skin or palate. The fourth day after inoculation the volunteer felt well; temperature was normal; the exudate had disappeared from the throat; the submaxillary lymph glands had subsided; and the tonsils were less swollen. There was no rash on the skin or palate.

A woman, aged 21, was inoculated with hemolytic streptococcus. Forty-eight hours after the inoculation she had a sore throat and general malaise. The tonsils were swollen and partially covered by a white exudate. The temperature by mouth was 99 F. The following day a typical follicular tonsillitis had developed with a temperature of 101 F. and a leukocyte count of 10,600. There was no rash on the skin or palate. On the fourth day the symptoms and throat were improved; the temperature was normal, and the patient made a prompt recovery.

A man, aged 34, was inoculated with a hemolytic streptococcus. The next day he had a normal temperature and a leukocyte count of 7,600. The second day he still felt well and his temperature was normal, but his tonsils were slightly reddened. On the third day, he had a slight sore throat with a temperature of 100 F. and a leukocyte count of 10,000. There was no rash on his skin or palate. On the fourth day he felt well, though his temperature was still 99.3 F. On the fifth day he was fully recovered.

A woman, aged 22, was inoculated with hemolytic streptococcus. On the second day following inoculation her temperature rose to 100.2 F.; her throat was injected and her tonsils were swollen. There was no rash on the skin or palate. The leukocyte count was 9,400. The next day there was marked improvement with a normal temperature. Nothing further developed.

A woman, aged 20, was inoculated with a hemolytic streptococcus. This organism had been isolated from a scarlet fever patient just as the rash was appearing. On the second day following inoculation, the temperature rose to 100 F. in the afternoon. On the third day the temperature was 100.6 F., the throat was hyperemic and the tonsils were somewhat enlarged. The leukocyte count at this time was 10,000. There was no rash on the skin or palate. On the fourth day the throat condition was improved and the temperature was lower. On the fifth day the volunteer had fully recovered.

A man, aged 22, was inoculated with a hemolytic streptococcus. Three days later he felt well, but his temperature was 99.2 F. The only change that could be seen in the throat was a white exudate in one tonsillar crypt. There was no rash on the skin or palate. The next day the exudate had disappeared from the crypt and the temperature was normal.

A woman, aged 25, was inoculated with a hemolytic streptococcus. This organism was obtained from a scarlet fever patient with an intense rash. On the fourth day following inoculation, the volunteer complained of sore throat; the temperature was 101 F.; the throat was hyperemic, and the tonsils were swollen and red with some exudate in the crypts; the leukocyte count was 10,000. There was no rash on the skin or palate. On the fifth day there was marked improvement.

INOCULATION EXPERIMENTS WITH A PLEOMORPHIC ORGANISM ISOLATED FROM THE THROAT OF AN EARLY SCARLATINA PATIENT

Nine inoculation experiments were done with a living pure culture of a pleomorphic organism similar to those previously found in cultures of throat, blood and urine in early cases of uncomplicated scarlet fever. Attempts to prepare a satisfactory antigen of this organism for complement fixation tests had not been successful. The strain used in these experiments was isolated from the throat mucus obtained from a patient with scarlet fever before the rash appeared. It showed such extreme pleomorphism that it was kept under daily observation three months before it was accepted

as a pure culture. During these three months, the organism was repeatedly subjected to plating out followed by plating out of single colonies from the first plates; followed again by plating out of single colonies from the second set of plates, etc., until six generations of single colonies had been plated out, after which single colonies were transferred from the last set of plates and all of the old cultures were discarded. The same variability of morphology, staining properties and character of growth would ultimately appear in the new cultures. The whole process would then be repeated. This strain grew aerobically and anaerobically on blood agar and to some extent on plain agar. The growth when a pure culture was plated appeared in from twenty-four to forty-eight hours as minute, transparent, convex colonies which did not affect blood. The morphology of the organism varied from very minute pleomorphic bacilli to longer bacillary and thread forms which were sometimes branched. The gram stain was inconstant; sometimes positive; sometimes negative; frequently gram-negative individuals contained gram-positive granules. Unstained areas were common. A further report concerning this organism is reserved until a later time.

Of the nine volunteers receiving inoculations with this organism by means of throat swabs, seven showed no reaction whatever. Two developed sore throat with fever, leukocytosis and a rash on the palate. They did not show a skin rash. A description of these cases follows:

A woman, aged 28, following inoculation had no symptoms or rise of temperature for two days. On the morning of the third day, she complained of sore throat; the temperature at this time was 99.4 F. There was a hyperemia of the pharynx and swelling of the tonsils. The leukocyte count was 18,400, with 93 per cent. polymorphonuclear leukocytes. There was no rash on the palate or on the skin. On the fourth day the temperature was 100 F.; the submaxillary lymph glands were swollen and the throat showed a generalized reddening with a rash on the soft palate and on the posterior portion of the hard palate. On the fifth day the rash on the palate was more marked; the temperature was 101 F., and the edema of the throat and enlargement of the cervical glands had increased. On the sixth day the inflammation of the throat and the fever began to subside and the volunteer made a rapid recovery. There was at no time a rash on the skin.

A woman, aged 20, showed nothing noteworthy until the beginning of the fifth day following inoculation, when a small, petechial hemorrhage appeared on the right side near the junction of the hard and soft palates. The throat as a whole was reddened, especially the anterior pillars of the fauces. At this time the volunteer noticed no sore throat, and the temperaure was normal, but the leukocyte count was 12,000. The following day the petechial hemorrhage noted was larger, and there was a rash of bright red points over the whole of the soft palate and the posterior part of the hard palate. The temperature on this day was 99.2 F., and the volunteer said that her throat felt a little sore. The leukocyte count was 16,000. On the seventh day the temperature was normal, and the rash on the palate was less red. Two days later there was practically nothing abnormal to be seen in the throat, and the volunteer was entirely well. There was no rash on the skin at any time. On the sixth day after inoculation, a few small cutaneous hemorrhages occurred in the cubital fossae on constriction of the upper arm.

COMMENT

In this series of experimental inoculations, no instance of typical scarlet fever was produced.

It would seem that the negative results reported here following subcutaneous inoculation of blood serum, whole blood and filtered throat mucus are more conclusive than are the negative results following throat inoculations.

The thirty streptococcus throat inoculation experiments constitute a series large enough to discourage further experiments of the same kind with hemolytic streptococci.

If the pleomorphic organism used in nine of the throat inoculation experiments bears an etiologic relation to scarlet fever, it should be possible by inoculation of a larger series of volunteers to produce a rash on the skin as well as on the palate.

INTERMITTENT HYDRARTHROSIS*

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In the first contribution on this subject, published by Dr. C. H. Moore, in 1864, occurs this statement: "The subject of periodicity, or the tendency manifested by certain phenomena of life to recur after equal or nearly equal intervals of time, is still one of the curiosities of medical science. It has been often observed, yet not explained."

How well this applies now will be evident from the discussion to be submitted in connection with the subject of this paper.

Periodicity in disease is observed under different phases, but there is no more striking example than that presented by the condition referred to as intermittent hydrarthrosis, or hydrops intermittens articulorum, which is characterized by recurrent effusions into joints with little or no febrile disturbance or local signs of inflammation.

It is due to the publication of Moore in 1864 that attention was first directed to this interesting clinical syndrome, although two cases presenting the phenomena of this disorder were reported by Perin in 1845, but were not recognized as such at the time, and were republished in 1878 under the proper title.

In the seventy-six years since the first observation, seventy-six cases have been recorded, and while a certain number are somewhat incomplete, there are seventy cases on record that have conformed to a definite type, and it is interesting to note how clearly the characteristic periodicity is maintained in all of the observations.

As a rule, the number of cases reported by each author has varied from one to three examples; the largest number reported by one observer is by Garrod in 1910, who published the records of seven cases.

The greater number of the contributions have appeared in the French, German and English literature.

The first case observed in Australia was reported by Springthorpe in 1912.

The first case published in American literature is that by Fridenberg in 1888; since then one case was reported by Kennedy in 1894, two cases by Brackett and Cotton in 1901, three cases by Healy in 1908, and with the one case included in this paper there have been eight cases recorded in this country.

Those who have written on the subject have a tendency to associate intermittent hydrarthrosis with

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* Read before the Section on Practice of Medicine at the Seventy-Second Annual Session of the American Medical Association, Boston, June, 1921.

those diseases in which periodicity is a prominent symptom. It is only natural that malaria should be accorded etiologic significance by the earlier writers, particularly since quinin therapy at times seemed to benefit the condition.

Others have been inclined to establish a kinship with articular processes, maintaining that it is a phase or symptom of various articular lesions; and there is a strong tendency among recent contributors to group this with the vasamotor disorders.

In view of the rarity of the disease, I will add the report of one case to those previously reported:

REPORT OF CASE

History.—Mr. L., who is now 36 years of age, manager of a local food market company, whose wife is living but has no children, first came under observation five years ago in 1916. Born in Iowa, he passed through a measles, scarlet fever and mumps infection during childhood, and while in Arkansas in 1904 he had a short attack of malaria which was promptly relieved by quinin, and there has been no recurrence. He soon after returned to Iowa, and then went to Colorado in 1908, where in the fall of 1909 he had an attack of acute rheumatic arthritis involving many joints, of three weeks' duration, which was followed the next year, 1910, by a severe recurrence, continuing through the greater part of that winter. Soon after his recovery in the summer of 1911 he had an illness of five weeks with typhoid fever. Since that time there has been no recurrence of acute arthritis. It is noted though that as early as the spring of 1909 an occasional painful swelling of the left knee had occurred, lasting one or two days, and then passing away. With the onset of the first attack of acute rheumatism in the fall of 1909, the left knee was the first joint to become involved. He returned to Des Moines in 1911, and soon became impressed with a certain regularity in the recurrence of swellings of the left knee. Although conscious of a tendency to periodicity because he marked the periods in his mind as "about time for the knee to swell," he did not consider that feature as sufficiently important to keep a record of it.

After appearing for examination in July, 1916, his attention was called to the periodicity of the attacks, and the patient was advised to keep a more careful record of them. This procedure was most faithfully carried out for a period of five months, and afterward for shorter periods up to the present time. He was also at various times admitted to our hospital service, which permitted accurate observation of the condition.

In the chart made by the patient, a record was made of the day of onset, the height of the swelling, when it began to subside, and the apparent return of the knee to its normal state. The swelling reached its acme on the third day, at which time the pain and discomfort was most marked. The entire cycle had a uniform period of six days, which was followed by a constant and definite interval of twelve days.

This intermittent type or cycle was maintained without a break until the present time. During the interval the knee appears normal in every respect, and in no way interferes with the patient's work, which requires being on his feet all day. A greater degree of rest, as when confined to the hospital, tends to modify the swelling and the resulting discomfort, but no form of therapy has particularly influenced the intermittent attacks of hydrops of the left knee.

Since November, 1920, the right knee has become involved in a similar manner; the swelling is not so marked as the left and covers a cycle of five days, with an intermittent interval of eleven days. At first the hydrops of the right knee followed that of the left, but it has gradually changed so that at present it just precedes the swelling in the left knee.

As to the development of the hydrarthrosis as observed in this case, it occurs with clocklike regularity on the twelfth day of the interval, when the knee begins to swell by a fulness on each side of the patella, a ballottement of the patella developing on the second and third day. On the second day a painful stiffness is noted in the joint which causes a limp in walking; at the height of the swelling on the third day the circumference of the knee measures 5 to 6 cm. more than after the swelling subsides. On the fourth and fifth days the swelling, with the stiffness and pain incident thereto, begins gradually to disappear, and on the sixth day the knee has returned to the normal state. At no time in the cycle is there any redness or increase in temperature about the affected joint.

During the last five years there has been one exploratory aspiration made, and the fluid removed contained no demonstrable micro-organisms.

Roentgenograms were prepared by Dr. T. A. Burcham in 1916 and again in January, 1921, with a negative result in both instances.

After a ten years' history of the affected joint, it is remarkable that no changes are demonstrable in the tissues of the joint.

General Examination.—The patient at the present time is of medium muscular stature, well nourished, average weight 155 pounds, height 68 inches, mentally alert. There are no signs of abnormal changes in the cranial nerves, and the gait and reflexes are normal. Vasamotor disturbances are not manifest. Vision and hearing are normal. The teeth, with the exception of three that are missing, are normal. The tongue and throat are normal. The lungs and heart are normal. The arteries are soft; the systolic pressure is 135, diastolic, 80. The abdomen is rounded and, well muscled, with no painful areas on palpation. The liver and spleen are not palpable. Fluoroscopic examination of the gastro-intestinal tract is negative. The rectum is negative; the prostate gland is not enlarged.

Aside from the changes described in the left and right knee joints, there are no demonstrable abnormal changes in any of the other joints.

Special laboratory examinations are recorded as an average of a large number of examinations: Blood: hemoglobin, 80 per cent. (Sahli); erythrocytes, 4,567,000; leukocytes, 7,600; differential polymorphonuclears (neutrophils), 62 per cent.; eosinophils, 2 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 2 per cent. Wassermann reaction, negative. Coagulation time, normal. Urine: acid, specific gravity 1.026, albumin and sugar not present. No diacetic acid. No abnormal microscopic sediment. Sugar tolerance normal. Renal function: first appearance of phenolsulphonephthalein nine minutes. First hour, 90 c.c. = 45 per cent.; second hour, 70 c.c. = 20 per cent., with a total of 65 per cent. Basal metabolic rate, 4.5 per cent. plus.

Treatment.—While the patient has been under observation, the treatment has had two purposes: to remove any demonstrable infective foci, and local therapy to the affected joints of various kinds. The tonsils were removed in 1917, after which the frequent attacks of suppurative tonsillitis, which had been an annual occurrence, did not recur. Three devitalized teeth with definite foci of infection were extracted in November, 1920. In March, 1921, several large, bleeding hemorrhoids were removed by cautery; these had been regarded as a possible causative factor in provoking the moderate anemia.

Under local therapy to the knee joints, a variety of measures have been given a good trial, including injections into the synovial sacs of iodin solutions, external applications of heat, cold, tincture of iodin, electricity and elastic supports. At present, elastic supporters are worn on both knees and give the patient a great deal of comfort.

In the way of internal medication, arsenic, quinin, iodids and different bacterial vaccines (hypodermically) have been given without appreciable benefit.

Summary of Essential Features.—It is evident that a definite periodicity has been maintained for the last five years and probably longer, the entire course extending over ten years, with a fixed period as to cycle and interval that has remained constant in the left knee, with a similar tendency recently in the right knee.

A causative influence can be attributed to two attacks of multiple acute arthritis in the early part of the course of intermittent hydrarthrosis, but since then there have been no associated phenomena of a rheumatic nature to be determined.

The general health has not been affected, and the local affection has evidently not been modified or relieved by the various measures that have been applied.

HISTORICAL SUMMARY

A unity of clinical symptoms has been noted by all observers, which has tended to establish the affection as a definite disease complex; but the opinions and discussions as to the pathogenesis and nature of the process have not been marked by the same uniformity.

In seventy-four cases in which the joint involvement is recorded, the left knee was affected alone in twenty instances, the right knee in twenty-seven cases, and both knees were affected in twenty-seven cases. Associated with six cases, the following joints were also involved: left elbow (twice), right elbow, right ankle, left hip and right wrist joints. The distinctive feature noted is that one or both knee joints is involved in every case reported as intermittent hydrarthrosis.

The longest cycle or attack recorded is given as eighteen days, the shortest two days, with an average of from four to five days as the most common period. The longest interval recorded is thirty days, while the shortest is four days, but a periodicity of twelve days prevails in the majority of the cases.

Concurrent complications have been noted, as arthritis, tuberculosis, anemia, eczema and syphilis; but in the cases that were true to form, the general health was apparently normal and there were no systemic disturbances. Of all concurrent conditions, pregnancy exercises a most conspicuous influence in that it seems to bring about a remission or disappearance of symptoms. In eight of nine cases recorded, there was a complete cessation for a period of six months postpartum.

There seems to be no connection with the menstrual function, although in a few instances the attacks occurred at the same time.

It is interesting to note that in the seventy-six cases recorded men and women were affected alike—thirty-eight of each.

All ages seem to be liable to this disorder, although the decades of life subjected more to exposure and physical strain furnish the larger number of victims. In the seventy-six cases in which the age is given, five were in the first decade, twenty-two in the third, twenty-four in the fourth, nineteen in the fifth, and four in the sixth, and two cases occurred after 60 years of age.

The occupation is noted in about one half of the cases, and it appears that the working class predominates, although a number of professional men have been affected by this disorder.

Heredity has been noted to be a factor in one instance, in the observation made by Blanc, in which both the mother and daughter were affected.

PATHOGENESIS

There has been a tendency to regard the periodicity of the crises as being in accord with the vital phenomena of micro-organisms, and in consequence in the more recently recorded cases efforts have been made to isolate micro-organisms in the fluid of affected joints, but without result. Dr. F. J. Poynton,[1] in a discussion on Dr. Marsh's paper, makes the statement that micro-organisms in affections of the joints are commonly confined to the subendothelial layer and are rarely found in the fluid, which may explain why bacteriologic investigations have been generally unsuccessful.

The earlier writers were inclined to regard the periodicity feature as significant of a malarial origin; but the connection was not demonstrable, and such eminent authorities on the subject of malaria as Sir Patrick Manson and Major Donald Ross have stated that they did not know of any joint affection due to malaria.[2]

Trauma has been noted in a number of instances as the exciting cause. The part that trauma plays is not easy to decide, but it has a strong negative side, when it is considered that most of the cases recorded present no history of injury causing the first attack. The swelling often comes on when the patient is purposely resting.

A number of recorded cases, including the one here reported, evidently followed an attack of acute rheumatism, although the subsequent symptoms of intermittent hydrarthrosis in no sense resembled those of acute arthritis. Schlesinger makes the argument against its rheumatic nature, in that during a long course of the affection the endocardium remains spared.

While there is much about this disorder that suggests its infectious origin, the connection is still too remote to be explanatory.

NATURE OF THE PROCESS

Aside from the mystery of its pathologic significance, the most interesting feature of this condition is the periodicity. In the state of present knowledge, any attempt to offer a physiologic interpretation of periodicity would be unsatisfactory.

As a syndrome there are few, and these quite incomplete, analogies in the entire field of medicine; but a large number of the authors see a kinship with certain vasomotor disorders, particularly with the acute circumscribed edema of Quincke. This is further suggested by the association of certain articular affections with cutaneous lesions of the erythema group, as Henoch's purpura and erythema nodosum.

The manifestations of angioneurotic disorders are frequently intermittent and periodic. In order to establish this affinity it would seem that localized edema, rashes or other vasomotor disturbances should accompany the hydrarthrosis; and while these have been observed in a small number of cases, in the large majority of the recorded cases vasomotor phenomena were not present.

The injection of diphtheria toxin as well as various antitoxic serums has been followed by temporary swellings of joints suggesting a selective irritative action, probably affecting the vasomotor control of the blood vessels.

The fact that the knee has a most complicated, and by far the largest synovial surface, may explain its peculiar liability to any secretory disorder. It is significant that the knee joint is involved in every recorded case of this disease. In this connection an instructive study of the origin of effusion into joints has been presented by Hildebrand.[3] He describes the tremendous network of blood vessels supplying the capsule and synovial membrane, particularly of the knee-joint, and emphasizes the fact which several anatomists have corroborated, namely, that the blood vessels, even the smallest arterial branches, are extraordinarily well supplied with medullated nerve fibers which enter the muscularis, and that all the smallest transitional vessels and capillaries are supplied with nonmedullated fibers. Thus there exists, under the influence of the nervous system, a thoroughly distributed and delicate mechanism capable of readily altering or restoring the normal secretory conditions. Hildebrand also tells of the

1. Poynton, F. J.: Lancet, April 22, 1905.

2. Cited by Marsh.
3. Hildebrand: Arch. f. klin. Chir. 81:412, 1906.

peculiarly rich nerve supply to the serous surface itself. The nerve endings are there largely composed of special sense-bulbs. He suggests that through this mechanism irritations which might neither be felt as such nor cause gross anatomic alteration could readily by reflex action produce a transudate. Bennett [4] corroborates this from the clinical standpoint in telling of his fifty-six cases of nontraumatic effusions following old injuries. Pollard [5] has expressed the belief that many cases of circumscribed cutaneous edema, reported as occurring with tachycardia, prove an abnormal excitability of the vasomotor center in the medulla. Perhaps the occasional occurrence of tachycardia with hydrops of joints may give his hypothesis some value in this affection.

One can logically correlate certain facts, as the tendency in all instances to involve one or both knees, the contribution of Hildebrand explaining the intimate anatomic relationship of the extensive circulation of the knee-joint and the nervous system, and the character of the swelling and alteration in the affected part, permitting the assumption that transitory influences acting either through the circulation or the nervous system, psychic or reflex, mildly toxic or infective, can produce the unique syndrome of this disease condition. It is difficult to account for the periodicity, mainly because in the whole list of biologic and pathologic periodic phenomena, as periodic psychosis, periodic epilepsy, periodic vomiting, for menstruation and periodic migraine, no satisfactory explanation has yet been offered.

PREVIOUS CASES REPORTED

Numerical Order	Author	Publication	Number of Cases
1, 2	Moore	Lancet, April 30, 1864	2
3	Canonne	Thèse de Paris, 1867	1
4	Lorwenthal	Berl. klin. Wchnschr., 1871	1
5, 6	Grandidier	Bad Neundorf, 1851; cfr., Berl. klin. Wchnschr., 1872	2
7	Bruns	Berl. klin. Wchnschr., 1872	1
8	Bylicki	Przeglad lekarski, 1874; cfr., Centrbl. f. Chir., 1874	1
9	Roser	Centrbl. f. Chir., 1874	1
10, 11	Jousset	Art. médical de Paris, 1877	2
12	Rejou	Thèse de Paris, 1877	1
13	Verneuil	Thèse de Paris, 1877	1
14	Schmidt	Ber. d. Wiss. Vortr. med. Ges. z. Leipzig, 1877	1
15	LeDentu	Société de chirurgie, 1878	1
16	Panas	Soc. de chir., 1878; cfr., l'Union méd., 1878	1
17	Perrin	J. de méd. de Trousseau, 1845; l'Union méd., 1878	1
18	Veillard	l'Union méd., 1857, 1878	1
19	Seeligmuller	Deutsch. med. Wchnschr., 1880	1
20	Pletzer	Deutsch. med. Wchnschr., 6, 1880	1
21	Fiedler	Deutsch. med. Wchnschr., 1881	1
22	Kolbe	Deutsch. med. Wchnschr., 1881	1
23	Pierson	Deutsch. med. Wchnschr., 1881	1
24	Vogt	Deutsch. Chir., 1881, p. 64	1
25	Kapper	Allg. Wien. med. Ztg., 1885	1
26	Goix	Jour. d. Sc. méd. de Lille, 1886	1
27	Rosenbach	Centrbl. f. Nervenh., 1886	1
28	Nicolaisen	Norsk. Mag. f. Lægevidensk., 1887; cfr., Centrbl. f. Chir., 1887	1
29	Eschricht Von Brinken	Inaug. Diss., Kiel, 1888 Berl. klin. Wchnschr., 1889	1
30	Fridenberg	Med. Rec. 33: 657 (June 16) 1888	1
31	Hartmann	Inaug. Diss., Koenigsberg, 1889	1
32	Breslauer	Inaug. Diss., Würzburg, 1889	1
33	Schuchardt	Die Gelenkswassersucht, Jena, 1892	1
34	Köster	Deutsch. Ztschr. f. Nervenh., 1892	1
35-38	Fére	Rev. neurol., 1893	4
39	Colonna	Gaz. med. di Torino, 1894	1
40	Kennedy	J. A. M. A. 23: 900 (Dec. 15) 1894	1
41	Grube	München. med. Wchnschr., 1894, p. 824	1
42	Chauvet	Lyon méd., 1895	1
43	LeMeme	Gaz. hebd., 1896; thèse de Paris, 1896	1
44, 45	Senator	Arch. f. Nervenh., 1896	2
46, 47	Blanc	Lyon méd., 1897, cited in Sem. méd., 1899	2
48	Weisz	Berl. Klin. 119, 1896	1
49	Bum	Wien. med. Club, 1899; München. med. Wchnschr., 1899	1
50	Schlesinger	München. med. Wchnschr., 1899; Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1900, p. 441	1
51, 52	Benda	Allg. Centralbl. med. Ztschr., 1900, No. 41	2
53, 54	Brackett and Cotton	Boston M. & S. J., Oct. 31, 1901	2
55	Linberger	Beitr. z. klin. Chir., 1901, p. 299	1
56, 57	Marsh	Lancet, June 4, 1904; April 22, 1905	2
58	Kamp	Deutsch. med. Wchnschr., 1902, No. 12	1
59-61	Healy	Surg., Gynec. & Obst., 1908, p. 466	3
62	Schuller	Ueber die Entstehung der Gelenkmäuse, 1909	1
63	Ribierre	Bull. Soc. méd. d. hôp. de Paris, 1910	1
64	Gandy	Bull. Soc. méd. d. hôp. de Paris, 1910	1
66-72	Garrod	Quart. J. Med. 3: 207, 1910	7
73	Springthorpe	Australian M. J., 1912, p. 725	1
74	Chiray and Michelowsky	Paris méd. (these), 1913, p. 152	1
75	Dalche	Bull. Soc. méd. d. hôp. de Paris, 1913, p. 441	1
76	Pulawski	Wien. klin. Wchnschr., 1914, p. 421	1

4. Bennett: Lancet, Jan. 7, 1905.
5. Pollard, R.: Ztschr. f. inn. Med., 1907, No. 2.

PROGNOSIS AND THERAPY

The fact that no recorded case has come to necropsy indicates either that the case passed out from under observation or that the symptoms gradually subsided. In one of Blanc's cases the condition existed for twenty-two years, and then improved with a gradual disappearance of symptoms.

While the disease often continues without interruption for a long period of years, there is a distinct tendency to remission or prolongations of the interval between attacks, and is is further obvious from a statistical study of the recorded cases that the ultimate result is favorable. In some instances these so-called cures have been attributed to a medicinal agent like arsenic or quinin or some special external application, yet others have been equally likely to spontaneous betterment. Those who regard this affection as closely related to the functional nervous disorders will find in these spontaneous cures a support for their hypothesis.

As long as the pathogenesis and nature of this curious disease complex remains obscure, it will be difficult to place a definite estimate on the different remedial measures that have been proposed.

ABSTRACT OF DISCUSSION

DR. RALPH PEMBERTON, Philadelphia: The more I see of arthritis, the more I feel that the phenomena of the disease seem to be referable to a single basis rather than to many bases; and this seems to be true of the various types of the disease. However, this cannot be stated in an iron-clad manner. Classifications hitherto have been rather too much from the clinical and not enough from the pathologic standpoint. You must all have been impressed with the frequency with which a diffuse rheumatic process occurred in the case cited. It seems to me that the condition described is part of the arthritic syndrome at large, and that such a conception offers what is necessary to explain it. The periodicity is hard to account for, but we know that fluctuations are frequent in arthritis, and, perhaps, the periodicity may have been more apparent than real. It is interesting to note that the knees are the sites most frequently involved in nearly all classifications of arthritis. In the studies of Lillie and Lyon at the Mayo Clinic in relation to arthritis and tonsillar infection it was found that the knees were most involved, and in our studies in 400 cases we reached the same conclusion. I have sometimes suspected that the effusion in joint disease is a compensatory matter, and I can hardly refrain from mentioning some work that Dr. Hendrix, Miss Grouter and I are doing in Philadelphia now. We have been interested

in the respiratory function of the blood and have made the interesting observation that in the chronic types there may be a distinct departure from normal in the percentage saturation of the blood with oxygen. We have not been able to relate this to a disturbance of the dissociation curve of hemoglobin, and it is suggested that this high percentage of oxygen found in the blood is referable to some circulatory mechanism. It is, perhaps, easier to explain it by some change in the circulation by which the blood flow is altered than to explain it by subnormal metabolism. I mention this fact because Dr. Bierring brought out the view that the circulation may be involved in the condition he describes, and it may be that there is in this observation some substantiation of that. There is also some evidence that with improvement there is a drop in the high percentage saturation toward the normal level of health. Dr. Bierring spoke of the influence of quinin, which is one of the drugs which I think has some value in arthritis, though just how it acts I am not prepared to say.

DR. E. C. ROSENOW, Rochester, Minn.: In regard to the type of arthritis, experiments indicate strongly that among the most important factors is the infecting quality of the micro-organisms introduced. In the study of arthritis of many types we note in the animal different types of localization. In some there is an exostosis, and destruction of the joint. There is usually a suppurative lesion in the joint itself; in others, where this does not occur and the synovial membrane inflammation does not occur, and the trouble is periarticular, on intravenous injection of organisms from that type or arthritis. A very interesting point has been observed in chronic deforming types of arthritis and it brings up the manner that these circulatory disturbances may occur. In chronic cases the organism has not the power to localize in the joint, but it produces lesions around the joint, in the tendons and muscles, and the location of the organism is not marked with a suppurative lesion of the tissues but is associated with endothelial cell proliferation and cutting off the blood supply to the periarticular structures.

DR. JOSEPH ROSENTHAL, Brooklyn: Was there any leukocytosis? What was the incidence of tuberculosis, and of heart involvement in cases recorded in the literature?

DR. WALTER L. BIERRING, Des Moines, Iowa: In the series of examinations made a definite leukocytosis was not observed, and a disproportionate increase in the lymphocytes was not present at any time. There was no incidence of tuberculosis in the family history or the patient's environment. The fact that he was living in Colorado when his affection first developed did not indicate that he had originally gone to Colorado because of a suspected tuberculous infection. The discussion by Dr. Pemberton and his desire to establish a kinship of this affection with some phase of arthritis is in keeping with other observers, because the affection is frequently antedated by an attack of acute arthritis; yet there is also a strong tendency to associate the phenomena with vasomotor disorders, which is further borne out by the absence in many instances of any arthritic history. The thought expressed by Dr. Rosenow that infective agents of low virulence may find for their initial requirements for development an adaptable soil in the knee joint is suggestive, and the resulting reaction may not correspond entirely to the usual response to the entrance of infective organisms, in that a transudate may be the only result. Just how to reconcile this with the periodicity is somewhat difficult, unless it is assumed that there is a certain cumulative tendency in bacterial growth or toxin development to an appreciable extent, expressing itself in the formation of transudate, then spending itself and disappearing with periodic regularity. The periodicity is as difficult to explain as are many other periodic phenomena encountered in disease conditions. An association of these several suggestions may offer the best explanation. The special anatomic arrangement of the knee joint, particularly with reference to the circulation and the nervous system, permits mild irritants, either acting by way of the circulation or nerve distribution, to produce the characteristic effects peculiar to this condition. The value of quinin in the affection, dissociating its influence with any malarial origin, may best be explained by the well known sedative action of the several salts of quinin.

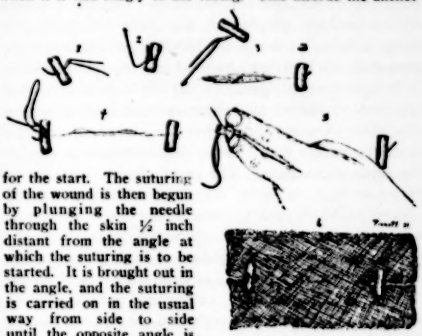
Clinical Notes, Suggestions, and New Instruments

A SIMPLE AND EFFICIENT METHOD OF ANCHORING THE ENDS OF A SUBCUTICULAR SUTURE

L. M. VAN METER, M.D., DENVER

In February, 1919, while operating in Base Hospital 103, I made practical use of a method of anchoring the ends of a subcuticular suture that I had been evolving in my mind for some time. I have never seen it used by another or elsewhere described. The advantages of the method are that it obviates: (1) a tying across of the suture at each end of the wound; (2) several undesirable punctures of the skin necessitated by this method of tying of the suture, and (3) the necessity of having to carry the suture from the surface downward between the edges of the skin incision before the first intracutaneous bite is taken.

The method is simplicity itself: Two pieces of small rubber tubing about ¼ to 5/16 inch in diameter and about 2 inches long, such as are always available in the operating room, ready sterilized, are used. The needle threaded with the suture material is passed through the center of one of these pieces at its midpoint. The suture is drawn through to near its end, when it is tied snugly to the tubing. This affords the anchor for the start. The suturing of the wound is then begun by plunging the needle through the skin ½ inch distant from the angle at which the suturing is to be started. It is brought out in the angle, and the suturing is carried on in the usual way from side to side until the opposite angle is reached; then when the last bite is taken, the needle is carried under the skin, and made to emerge ½ inch distant in the line of the wound. The second piece of rubber tubing is then transfixed as was the first. The tubing is threaded along the suture until it rests firmly against the skin, where it is held by an assistant. The tubing is again pierced by the needle in a plane at about a right angle to the first passage of the needle; the short end of the suture is not drawn entirely through, the loop is drawn down snugly and the suture tied. This method gives a neat subcuticular closure with only a single skin puncture, about ½ inch from each angle of the wound.



Steps in methods of anchoring ends of subcuticular sutures.

In doing the dressing, I split a small gauze pad and slip it astride the suture beneath the rubber tubing to lift it slightly from the skin, and so prevent direct pressure of rubber on skin. I then lay a sufficient thickness of gauze between the two pieces of tubing over the wound to fill in this interval up to the thickness of the tubing. The method is so easy and simple that it would seem strange if it has not been used by others; but I have never seen it described and have seen no one else employ it. My choice of material for the ordinary intracutaneous suture is No. 0 chromic catgut.

After eight or ten days the ends are cut beneath the bits of rubber tubing, the latter are lifted off, and the buried portions of the suture are left for absorption. The resiliency and smooth yielding surface of the rubber tubing make it preferable to the perforated lead shot or a button or disk of metal or other hard substance.

428 Majestic Building.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - - Six dollars per annum in advance

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SATURDAY, SEPTEMBER 3, 1921

FOOD ALLERGY AND ABDOMINAL PAIN

There is some danger at the present time that the words "anaphylaxis" and "allergy" may become applied in clinical medicine in the haphazard way that characterizes various terms coined to meet the demands of modern endocrinology To the students of immunology, anaphylaxis has come to mean something definite, to designate specific and characteristic symptoms such as are observed in the usual reactions with typical soluble proteins. Wells[1] has insisted that reactions produced by substances not coming within this class cannot be considered as true anaphylactic reactions unless they can be demonstrated to exhibit the same phenomena. The term allergy, he adds, is broad enough to cover all those manifestations of altered reactivity and to indicate their relationship to one particular form of allergy, anaphylaxis.

Whether the various conditions, such as the tuberculin reaction, hay-fever, and food and drug idiosyncrasies, which manifest cutaneous hypersensitivity belong in the domain of anaphylaxis has been seriously debated by students of the subject.[2] This fact at once serves as a warning against too hasty generalizations, while it encourages a more vigorous study of the problems with the end of securing a more rational prophylaxis and therapy of the skin manifestations or other aberrant symptoms that are suspected to have their origin in some form of allergy. With this reserve we refer to a recent report presented by Duke[3] to the St. Louis Medical Society. He ventures to cite food allergy as an occasional cause of abdominal pain. A number of cases which he has cited as following the ingestion of certain articles of food were found by intradermal skin tests to give local reactions in the same persons to the suspected food. In the majority of cases, pain was associated with nausea and vomiting; less frequently with indigestion, bloating, diarrhea and mucous stools, and much less frequently with hives, angioneurotic edema and purpura. The pain complained of was interpreted as the result of a reaction of allergy caused by contact between the gastro-intestinal mucosa and the food product to which it was sensitive. According to Duke, this contact gives rise evidently to gastro-intestinal symptoms in much the same way that contact between the mucous membrane of the respiratory tract with the pollen to which it is sensitive gives rise to hay-fever and asthma. It differs only in the fact that abdominal pain is the symptom in the one case and respiratory distress in the other.

If food allergy is a "real cause of gastro-intestinal turmoil," as it has been charged with being the inciting factor in "hives," angioneurotic edema and asthma, for example, the diagnosis should be rendered easier by skin tests with proteins, and the prospect of relief made more likely by avoidance of suspected foods or by desensitizing measures. Duke states that many of his patients exhibiting food allergy have had demonstrable pathologic lesions in the alimentary tract or its appendages, notably recurrent appendicitis, gallstones, duodenal ulcer, dense adhesions and extreme ptosis. It is not an extreme hypothesis to assume that an abnormality in the alimentary tract may be a contributory cause in the manifestations of food allergy described as abdominal pain.

1. Wells, H. G.: The Present Status and the Problems of Anaphylaxis, Physiol. Rev. **1**: 44 (Jan.) 1921.
2. Kolmer, J. A.: Bull. Johns Hopkins Hosp. **28**: 163 (May) 1917.
3. Duke, W. W.: Food Allergy as a Cause of Abdominal Pain, Arch. Int. Med. **28**: 151 (Aug.) 1921.

AN INFECTIOUS AGENT IN MILD DIARRHEA

Until a comparatively recent period, the study of diarrhea from an etiologic standpoint has received more scientific attention in the case of infants than in adult patients. The rise of tropical medicine as a somewhat independent discipline has been one of the factors responsible for the growing interest in the diarrheal diseases as special clinical entities in persons of all ages. In this more discriminating attitude of the medical profession, the application of bacteriologic technic to the investigation of the problems of disease has also played a significant part. Nevertheless, the terms diarrhea and dysentery are still used without the precision which medical nomenclature should represent.

Accurate diagnosis demands, among other data, a clear formulation of readily determinable symptoms of disease and, when possible, a knowledge of the inciting agency. These cannot yet be supplied in the case of some of the commoner gastro-intestinal disorders. A member of the Department of Preventive Medicine and Hygiene in the Harvard Medical School has recently made an attempt to institute some discrimination in this field.[1] He has pointed out clear distinctions between epidemic or infectious diarrhea and the more severe type of disease properly spoken of as bacillary dysentery. The latter is associated with *B. dysenteriae*, progresses rapidly, and usually requires hospitalization or similar medical care. There are evidences of toxemia in this form of disease, and the

1. Weiss, Harry: On the Etiology of an Outbreak of Infectious Diarrhea, Arch. Int. Med. **28**: 37 (July) 1921.

marked general reaction is accompanied with fever ranging from 100 to 105 F. Since 1898, the etiologic agent has been definitely ascertained.

Experience with the American Expeditionary Forces during the World War called attention to a mild, nonfebrile disease of short duration, characterized by symptoms of an irritating enteritis. They are purely local, and recovery usually follows purgation. The discharges from the bowel do not contain blood and mucus, both of which are characteristic of the stools of patients suffering from bacillary dysentery. Many bacteriologists have searched for *B. dysenteriae* without success in the milder cases. Weiss [1] has concluded that the milder infectious diarrhea is probably transmitted in much the same manner that other enteric diseases are spread, flies being suspected as one of the distributing factors. The Harvard investigators are encouraged to believe that they have discovered a pathogenic micro-organism which can be used to produce an active immunity against subsequent infection. Such findings, as in the comparable cases of the summer diarrhea of infants, have been singularly elusive in the past. Nevertheless, it is too early to relegate to oblivion the micrococcus isolated by Weiss during outbreaks of infectious diarrhea. Its alleged specificity is now presented for verification.

POLLEN DISEASE

The problem of seasonal hay-fever has taken on an entirely new therapeutic aspect since Dunbar, in 1905, reported his attempts to treat the condition with extracts of plant pollens. Considerable evidence has been accumulated by a number of conscientious observers regarding the possible interrelations between pollens and hay-fever; above all, however, the application of the cutaneous or skin test to ascertain the sensitivity of patients to specific antigens has promoted the management of what has long been an annoying malady for which the physician was all too often unable to suggest any durable relief. At the present time, although the essential features of the etiology of hay-fever are believed to be understood, the treatment is still largely of the hit or miss type. Preparations of mixed pollens are distributed by commercial houses and used by physicians in the hope that some ingredient will prove to be potent. Much of the sort of criticism that is today justly leveled at mixed vaccines and polyvalent products can be applied with equal reason to the exploitation of the hay-fever patient, although it must in fairness be admitted that ignorance still outweighs indifference where pollens are concerned.

Several facts seem at length to be so well established that they may serve almost as axioms in the clinic of hay-fever. One of these is that although the offending pollens vary in different parts of the world as well as at different seasons, the number chiefly responsible for the attacks in any single locality is comparatively small. Hence it becomes a duty of the physician to familiarize himself, by personal discovery if necessary, with the offending pollens in the region where his resources are in demand or whence his patients hail. For the New England states, Walker [1] of the Peter Bent Brigham Hospital, Boston, has lately reminded us of the situation. There the pollen of timothy grass is the cause of probably nine tenths of the early hay-fever of June and July; while for the late hay-fever of August and September the pollen of ragweed is virtually always responsible. It is true that the pollens of rose and red top grass occasionally cause early hay-fever and need to be determined by diagnostic tests, but these are the exceptional cases. The upshot is that diagnosis, the indispensable forerunner of rational treatment, is greatly facilitated by a knowledge of local probabilities; hence other observers are encouraged to publish their collected information, as Selfridge [2] has done for California, Koessler [3] for Illinois, and Scheppegrell [4] for the Southern states.

Like others in this field of medicine, Walker has emphasized the importance of making the treatment not only specific for a single determined pollen but also preseasonal. This yields the most satisfactory results, although treatment with pollen extracts during the season may sometimes benefit. Hence the physician should learn the technic of testing and treating seasonal hay-fever with reference to the seasons of pollination and the causative pollens. Treatment with pollen extracts during periods of hay-fever attacks is illogical from the standpoint of anaphylaxis, since it merely increases the amount of the noxious antigen present in the body. This explains, further, why treatment at such times may be actually hazardous.

Since a large variety of pollens may, in rare instances, cause hay-fever or pollen disease, those who have occasion to deal extensively with it should have a good assortment of pollens at their disposal. In extenuation of the frequent failures to relieve patients, it should be noted that certain persons are said to have vasomotor symptoms ranging from sneezing to asthmatic attacks due to the odors of flowers that have no pollen as well as to the presence of nonspecific dusts in the respired air. Walker has referred to mechanical, chemical and thermal causes of these symptoms. Obviously such irritants cannot be combated by specific pollen extracts. It is well to realize the limitations in this field of therapy; for such knowledge always makes for better practice.

1. Walker, I. C.: Frequent Causes and the Treatment of Seasonal Hay-Fever, Arch. Int. Med. **28**:71 (July) 1921.
2. Selfridge, G.: Spasmodic Vasomotor Disturbances of the Respiratory Tract, with Special Reference to Hay-Fever, California State J. M. **16**:164 (April) 1918.
3. Koessler, K. K.: The Specific Treatment of Hay-Fever (Pollen Disease), in Forchheimer's Therapeusis of Internal Diseases, New York, D. Appleton & Co. **5**:671, 1914.
4. Scheppegrell, William: Hay-Fever in the Southern States, Southern M. J. **9**:614 (July) 1916.

METABOLIC MISCONCEPTIONS

Precisely what happens when the temperature of a patient rises is a question regarding which every practitioner ought to have accurate information. The experimentalist can bring about changes in body temperature indicative of a delicate heat-regulating mechanism in the organism,[1] but the alterations which he induces by the use of drugs or artificially produced lesions are by no means always analogous to the conditions existing in a febrile patient. The assumption has been widespread that fevers commonly represent an interference with the ability of the body to eliminate heat.

Du Bois[2] has pointed out, however, that this view is usually false. The rise in temperature in the chills of malaria, which represents an extreme case with complications, is due to increased heat production, and this is caused in part by shivering and in part by some chemical regulation, the nature of which is still in doubt. Again, the Chicago investigators Balcar, Sansum and Woodyatt,[3] having produced excessive fever in dogs by depleting the water reserves of the animals, inferred that fever in man may be associated with an abnormal water metabolism. Du Bois insists, however, that there are no striking abnormalities in the loss of heat through vaporization in febrile patients. His calorimetric observations show that their water metabolism corresponds closely with that of patients exhibiting an equal percentage rise in metabolism caused by hyperthyroidism.

Another contradiction of current conceptions has been afforded by Means'[4] studies of obesity, which show the basal metabolism to be normal. Obesity must as a rule, therefore, be due to a disproportion between food intake and bodily activity, rather than to any fundamental change in the rate of combustion in the body. The widespread treatment of obesity by the administration of thyroid preparations is a device for raising metabolism to an abnormal level. The treatment of simple obesity by producing a state of hyperthyroidism Means[5] has recently designated as pernicious. Simple obesity can now readily be differentiated from the obesity due to endocrine disorder by determination of the basal metabolism. If this is normal, weight reduction should not be attempted by the use of thyroid, which has already become a practice of the laity and of "antifat specialist" fakers. It relieves one evil by creating another. If we accept Means' dictum[5] that thyroid should never be given except to persons who exhibit subnormal metabolism—a rather sweeping pronouncement—we can sympathize with his view that the sale of this drug except on prescription should be prohibited by law.

1. Barbour, H. G.: The Heat-Regulating Mechanism of the Body, Physiol. Rev. **1**: 295, 1921.
2. Du Bois, E. F.: The Basal Metabolism in Fever, J. A. M. A. **77**: 352 (July 30) 1921.
3. Balcar, J. A.; Sansum, W. D., and Woodyatt, R. T.: Fever and the Water Reserve of the Body, Arch. Int. Med. **24**: 116 (July) 1919.
4. Means, J. H.: J. M. Res. **32**: 121, 1915; The Basal Metabolism in Obesity, Arch. Int. Med. **17**: 704 (May) 1916. Means, J. H., and Woodwell, M. N.: Ibid. **27**: 608 (May) 1921.
5. Means, J. H.: Determination of the Basal Metabolism as a Method of Diagnosis and as a Guide to Treatment, J. A. M. A. **77**: 347 (July 30) 1921.

Current Comment

ANTIVIVISECTIONISTS ATTEMPT SUPPRESSION OF TRUTH

Mr. Baynes' excellent article "The Truth About Vivisection" in the July *Woman's Home Companion* has evidently proved a body blow to the professional antivivisection agitators. This article, which has already been commented on,[1] is written by one of the leading naturalists and animal lovers in the country. After long, painstaking, and impartial investigation he found, not only that there is no basis for the claims on which the antivivisectionists base their case, but also—and far more important, since it shows the mental and moral caliber of the agitators—that their literature is a tissue of misrepresentations and of garbled and obsolete authorities. Physicians have long known this. In the hearing on the Meyers Dog Bill (S. 1258) before the Senate Judiciary Committee, the advocates of the bill quoted, without any reservation, a statement of Dr. Henry J. Bigelow as the opinion of "one of the greatest surgeons in the United States." Yet Dr. Cannon showed that Bigelow was born over 100 years ago, that he made the statement quoted in 1871, that thirty years later he made another and entirely different statement endorsing animal experiments, that this fact was publicly called to the attention of the antivivisectionists at a Congressional hearing eleven years ago and that they were still using the original and misleading quotation. Mr. Baynes found many similar instances. One Dr. John Elliotson is quoted as a physician "of the highest intelligence." Mr. Baynes found that he was a mesmerist who was born 130 years ago. He also found that the whole case of the antivivisectionists is without any sound basis of fact. Mr. Baynes, as the author of the article, and Miss Gertrude B. Lane, editor of the *Woman's Home Companion*, are now naturally subject to all the invective and misrepresentation which the antivivisectionists can command. The following circular letter, sent out by the New York Anti-Vivisection Society over the signature of Diana Belais, shows the fair-mindedness and sweet reasonableness characteristic of this organization:

To All Friends of Animals:—One of the most reprehensible and misleading attacks upon our literature has its place in the July *Woman's Home Companion*, written by one Ernest Harold Baynes, who claims to be a humanitarian, going about the country lecturing to Humane Societies against cruelty to animals, yet at the last moment of his address delivering a strong defense of the most cruel practice in the world—vivisection. (I have been informed that he has done this without warning to the Society employing him.)

Permission has been asked by me to answer his glaring misrepresentations, but appearances indicate there is a general scheme afoot to spread vivisectional teachings broadcast through those magazines appealing especially to women.

In the meantime, please write to the *Woman's Home Companion*, 381 Fourth Avenue, New York City, excoriating this

1. J. A. M. A., Aug. 6, 1921, p. 469.

nonsensical article—full of perversions—that defends vivisection, and I sincerely hope you may follow my example by telling the editors that not only have you bought your last number, but that you will enter upon a personal campaign to urge others to withdraw all support in future.

I do not ask this of you on solely sentimental grounds, but because we must unmistakably show those who boldly and flagrantly misrepresent our literature that our united strength is something to be reckoned with.

Act at once!

Do not forget that vivisectors have admitted that our "Medical Opinion" booklet has done them a lot of harm—hence these repeated attempts to undermine it and our other work built up with so much care.

Faithfully yours,
Diana Belais,
President.

Comment is unnecessary. It is also superfluous in view of the admirable editorial of the Boston *Herald* for Aug. 25, 1921, which says:

The New York Anti-Vivisection Society is making a serious mistake in trying to boycott the *Woman's Home Companion* because it recently printed an article by Ernest Harold Baynes, the well known nature lover and humanitarian, on the "Truth About Vivisection." Are the antis unwilling that people should hear the other side? Apparently their president has sent a letter to the faithful in which he asks them all to write to the magazine, excoriating the article, and he further expresses his hope that they will follow his example by telling the editor that they have bought their last copy of it, and they will enter into a personal campaign to urge others to withdraw all support in future. It is not by suppression of intelligent discussion that any cause really derives aid. If the cause of the antis, in this instance, is so bad that they dread the presentation of the other side, it must be even weaker than we supposed.

The attempted boycott of the antivivisection agitators against Mr. Baynes, Miss Lane, and the *Woman's Home Companion* will naturally have little effect that was not anticipated. Every fair minded person must recognize the value of such an unbiased summary of the problem as Mr. Baynes has presented. A public service of great value has been rendered by the author of the article, the editor and the periodical which have had the courage to publish the facts in the face of such an unprincipled opposition as was realized would be encountered.

PUBLIC HEALTH LEGISLATION IN THE SIXTY-SEVENTH CONGRESS

The present Congress was called by the President to meet in special session on April 11, 1921. It took a recess at midnight on August 24, in accordance with a joint resolution which had previously been agreed on. During the session there were introduced in the Senate 2,457 bills and in the House 8,405 bills, beside several hundred resolutions, joint resolutions and concurrent resolutions. Of this large amount of legislative material, 121 were bills relating in some way to public health. The most important of these have already been discussed in THE JOURNAL. As is usually the case, only a few of these bills became laws. The Sweet bill creating a veteran's bureau became a law on August 9. The Sheppard-Towner bill, frequently referred to, passed the Senate on July 22 and is now in the committee on interstate and foreign commerce in the House. The Fess-Kenyon bill, providing for a department of public welfare and regarded as an administrative measure, is still before the committee to which it was referred. The Willis-Campbell bill amending the Volstead act passed both houses and was referred to a conference committee. The conference report was agreed on by the House prior to adjournment, but not by the Senate. The Smoot-Reavis joint reorganization commission, created by the passage of the joint resolution during the last session of Congress, is now at work on a survey of and plan for the reorganization of the entire executive department of the federal government. It is understood that the plans of the committee provide for a department of public welfare, as a part of the reorganization scheme. Other health measures include the general deficiency appropriation bill, containing an appropriation for the Interdepartmental Social Hygiene Board; a bill for the control of venereal disease in the District of Columbia; a bill creating a department of education, and several bills for the promotion of physical education. The Meyers dog bill, which was introduced at the last Congress, referred to the committee of judiciary and never reported on, was reintroduced in this session and referred to the same committee. No action on it has been taken. The adjournment is in the form of a recess until Wednesday, September 21, with the understanding that no business is to be transacted until Monday, October 3. This recess has no effect on the status of pending bills. All legislation now under consideration will continue as such after reassembling of Congress and if not acted on by the end of the special session will automatically come before the regular session of the sixty-seventh Congress which will meet according to law on December 5.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALASKA

Hospital News.—Arrangements have been made with the Bureau of Indian Education to admit, at low rates, natives who need hospital care, to the Anchorage Hospital, which was built and is operated by the Alaskan Engineering Commission for their employees.——In accordance with a general plan for retrenchment, the Alaskan Engineering Commission has decided to limit the functions of the general hospital at Nenana to emergency work, and to transfer the general work to Fairbanks, where arrangements have been made with St. Joseph's Hospital to handle railroad cases under contract. Chief Surg. Thomas O. Lake will make his headquarters at Fairbanks, and will have charge of all the hospitals in the northern division.

CALIFORNIA

Personal.—Dr. Frank W. Hodgdon, Jr., was appointed health officer and city physician of Pasadena, August 16, to succeed Dr. John Severy Hibben, who resigned to engage in private practice.——Dr. C. F. Brown has resigned as surgeon at the San Pedro receiving hospital to take charge of a 200-bed hospital in the province of Hunan, China. Dr. Brown is being sent as a medical missionary to China by the Westlake Presbyterian Church of Los Angeles.

Hospital News.—Following a survey of the hospital facilities of Merced County, plans were made, in consultation between officials of the League for Conservation of Public Health and the Merced County Medical Society, for a hos-

pital that would meet the actual needs of the county. It was decided to build a community hospital, the board of directors of which would be laymen, and the staff, physicians of the county medical society; the institution would be incorporated and the stock sold to the citizens of the community. Educational propaganda was started in March, and plans for the financial arrangements are so nearly completed that work can be started on the first unit of the hospital.——The cornerstone of the new $100,000 Orthopaedic Hospital School at Los Angeles was laid, August 21. In addition to the 940 patients now being treated by the Orthopaedic Foundation for part time, the new home will provide permanent quarters for from sixty to eighty inpatients. Five orthopedic surgeons will constitute the staff, no member of which will receive compensation for his services. The work is to be charitable, except in cases in which the condition warrants the payment of a fee by parents or guardians.

DISTRICT OF COLUMBIA

Dr. Peabody Accepts New Appointment.—Dr. William D. Tewksbury has resigned as superintendent of the Tuberculosis Hospital of the District of Columbia. He was succeeded by Dr. Joseph W. Peabody, who was named immediately by the commissioners of the District of Columbia.

ILLINOIS

Chicago

Personal.—Dr. P. J. H. Farrell has been elected Commander of the Chicago Chapter of Military Order of the World War.

National Hospital Day.—A meeting will be held at Chicago, September 10, to which all hospitals interested in the movement to educate the public to the true scope of hospital service are invited.

INDIANA

Sterilization Law Declared Unconstitutional.—The state supreme court has declared the sterilization law unconstitutional. The principal point taken is that the statutes do not give the person concerned a hearing before a judicial body where he may present his side of the case and evidence. The question was also raised as to sterilization being an extra punishment not ordered by a court.

MASSACHUSETTS

Personal.—Dr. Florence A. Sullivan was elected a member of the board of health, Haverhill, to fill the vacancy that was made by the death of Dr. John F. Croston.

MICHIGAN

State Bureau of Laboratories.—According to a statement of the commissioner of health, 149,542 specimens were examined during the fiscal year, ending July, by the bureau of laboratories—an average of thirty-four specimens to every physician in the state. Increased laboratory service for physicians throughout the state will be made possible, October 1, when the bureau of laboratories of the state department of health moves into its quarters in the new state office building.

Health Camp for Children.—The summer health camp on the grounds of the Municipal Tuberculosis Sanatorium, Northville, opened the doors of its permanent buildings, July 28. There are now about seventy-five children, undernourished and tuberculosis exposures. Ornamenting the space over the doorways of the various units are the plaster reproductions of Mother Goose fables—The Three Men in a Boat, Old King Cole, Humpty Dumpty, etc. This, together with the high gables, the expansive roofs of multicolored shingles, the miniature doorways and other unusual features suggest the gingerbread house famous in the adventurings of Hansel and Gretel. The children will remain at camp until the opening of school. It is expected that the capacity will be doubled next summer by the erection of additional units.

MONTANA

Government Aids in Campaign Against Rocky Mountain Spotted Fever.—Following the report of Dr. Thomas Parran, Jr., who was sent from Washington, D. C., to investigate the spotted fever situation in this state, it was announced that the U. S. Bureau of Public Health will spend $21,000 this year to aid in research work in the Bitter Root Valley in the campaign against spotted fever. A field laboratory is to be established near the regions where the disease is prevalent. The state will continue its control work, for which there is an annual appropriation of $9,600. There have been eleven cases of spotted fever this season, with nine deaths.

NEW HAMPSHIRE

Health Day.—At the Health Day conference held, August 5, at Durham, Dr. William R. P. Emerson, Boston, Dr. Helen I. D. McGillicuddy, Boston, field agent of the Interdepartmental Social Hygiene Board of the United States, and Dr. John Bowler, physical director of Dartmouth College, were among the speakers.

NEW JERSEY

Typhoid in New Jersey Towns.—Approximately 100 people are ill and one person has died in Burlington County towns, of typhoid traced to a church harvest home picnic held about three weeks ago. Nurses and physicians have been sent to the scene of the epidemic to assist local physicians in giving residents the typhoid immunizing treatment.——David C. Bowen, chief of local health administration at Trenton, stated that a farm hand was responsible for seventy-four cases of typhoid in previous epidemics. Officials of the state board of health have started an investigation to determine whether any of the typhoid cases in Burlington County can be traced to this farm hand, who has been declared a typhoid carrier.

NEW YORK

Infantile Paralysis Spreads.—Within a short period ten cases of infantile paralysis have been reported in Westchester County, thirty-three in Utica, fourteen cases in Herkimer County, and others in various parts of the state, making a total of 100 cases. Dr. Herman M. Biggs, state health commissioner, states that there is no need for alarm, but urges parents to keep their children away from large gatherings and advises that children be not allowed to become overfatigued. During the first eighteen days of August, fifty-three cases with eight deaths occurred in New York City. The cases are mostly of a mild type. It is thought that most of them have been brought from out of town.

New York City

Personal.—Dr. George O'Hanlon, general medical superintendent of Bellevue Hospital, and Dr. John W. Perilli have been made Chevaliers of the Crown of Italy by T. F. Bernardi, the Italian Consul General, the decorations being authorized in recognition of their work in the reorganization of the Italian Hospital in this city.

Typhus Suspect Holds Up Liner.—A suspected case of typhus in the second cabin of the Cunarder *Aquitania* which arrived in quarantine, August 21, detained the vessel an entire day. The patient and sixty-one passengers in her section were detained on Hoffman Island for observation. With present methods of inspection no repetition of a "typhus scare," such as occurred earlier in the summer, is anticipated.

OHIO

Personal.—Dr. John Dudley Dunham, who has been connected with the Grant Hospital, Columbus, has been elected as assistant professor of medicine at the Ohio State University, College of Medicine, Columbus.

State Health Meeting.—At the second annual conference of the Ohio State Health Commissioners, which was held, August 12-16, at Columbus, Dr. Haven Emerson, Dr. Richard A. Bolt, general director of the American Child Hygiene Association, and Dr. John A. McMullen were among the visiting speakers.

PENNSYLVANIA

Aged Physician Honored.—Dr. Donald Guthrie, head of the Packer Hospital, Sayre, recently entertained the members of the Sullivan County Medical Society at a dinner in honor of Dr. Martin E. Herrman, Dushore, who will be 80 years old in four months, and has just completed his fifty years as a surgeon and physician of active practice. At the conclusion of the banquet the Sullivan County Medical Society presented Dr. Herman with a silver loving cup.

State to Clean Up on Harrisburg Ice Cream.—Questions involving authority of the state department of health in third-class city health affairs have arisen as a result of a demand by state health officials that Harrisburg clean up its ice cream

and milk supplies. The municipal authorities have agreed to enact supplements to the milk regulation ordinance. State health authorities have called attention to reports on some of the ice cream sold and it is understood if the city authorities do not act, the state will take charge of plants and stores and enforce regulations.

Warns Against Danger of Polluting Water.—Warnings against the dangers of pollution of water and milk supplies were issued by the state department of health following investigations made by sanitary engineers into typhoid outbreaks in various parts of the state. Dr. John Moore Campbell, chief of the division of medical inspection, urged that promiscuous drinking of water from springs and wells be avoided; that local milk ordinances be passed to secure pasteurized milk, and the dairy farms be inspected and suspicious illnesses promptly reported.

Philadelphia

Typhoid Traced to Milk Supply.—Thirty-one cases of typhoid fever discovered within the last few weeks in the vicinity of Bryn Mawr have been traced to an infected milk supply. The wave of typhoid had been assuming the proportions of an epidemic when the health authorities took a hand. All the cases were in a section that embraces part of lower Merion Township, a district that had been supplied with milk by one dealer.

TENNESSEE

Hospital News.—The contract has been awarded for building the King's Daughters Hospital at Gullfort, at the cost of $90,000.——Plans have been completed for a new $450,000 Jewish hospital to be erected at Memphis.

VIRGINIA

Personal.—Dr. Edwin J. Nixon, Petersburg, had two ribs broken recently in an automobile collision.

WEST VIRGINIA

Personal.—The governor has appointed Dr. Dennis McClung, Rupert, as superintendent of the State Hospital for the Insane at Spencer, to succeed Dr. Samuel R. Holroyd.

GENERAL

American Academy of Ophthalmology and Oto-Laryngology.—The twenty-sixth annual meeting will be held at Philadelphia, October 17-22. The Trunk Line Association has granted an extension of time on the purchase of return tickets at half rates, from Oct. 26 to Nov. 1, 1921, provided 350 tickets are purchased on the certificate plan.

Personal.—Dr. Ma Saw Sa, head of the Lady Dufferin Hospital, Rangoon, Burma, and first woman of her country to receive a degree from a university, has come to the United States to continue the study of medicine at Johns Hopkins University, Baltimore. Dr. Ma Saw Sa has been made an honorary member of the Royal College of Physicians and Surgeons, Dublin.

Anesthetists to Place Morton Bust in Hall of Fame.—At the annual dinner of the American Association of Anesthetists held in Boston during the annual session of the American Medical Association it was voted to solicit funds for the purpose of placing a bronze bust of Morton in the niche assigned to him by the electors controlling the Hall of Fame. The bust is to be placed on October 16 in celebration of the anniversary of Morton's first public demonstration of ether anesthesia. Those desiring to contribute may send check or money order to Dr. F. H. McMechan, secretary of the American Association of Anesthetists, Avon Lake, Ohio.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hoffman Memorial Hospital, Little River, Kan., $50,000, as endowment fund from George M. Hoffman.

The Reid Memorial Hospital, Richmond, Ind., $30,000, by the will of Mrs. Helen Dongan.

Methodist Episcopal Hospital and Deaconess Home, Indianapolis, $6,000, for the endowment of a room, by the will of Fidelia Anderson.

Hahnemann and Flower Hospital, New York City, each $5,000, by the will of Mrs. Fannie J. Byrnes.

Mount Sinai Hospital, Philadelphia, $3,000; Jewish Hospital, $2,000; the Hebrew Sheltering Home, and the Hebrew Orphans' Home, the Downtown Consumptive Institute and the Juvenile Aid Society, each $1,000, by the will of Louis Mark of Philadelphia.

Home for the Aged, Newport, R. I., $3,000; Homeopathic Hospital, Providence, and the Homeopathic Hospital, Boston, each $2,000, and the Newport Hospital, $1,000, by the will of Dr. Nathaniel G. Stanton of Newport.

The Wesley Hospital, Chicago, and a Des Moines hospital, each a farm, under the will of Miss Hannah Longshore, Cambridge, Ill.

Child Health Council to Make Demonstration.—The National Child Health Council, the recently created national body for coordinating child health activities, has announced that plans for a novel national child health demonstration will be centered in Mansfield and Richland County, Ohio. With an appropriation of $200,000 set aside for the purpose, to be supplemented by funds from the community, it is hoped in the five years which the demonstration will cover to develop a program for child health that shall be so comprehensive and well balanced that communities all over the country will watch and profit by it. The Council made a careful study of the relative merits of approximately eighty communities which applied for the demonstration. Mansfield and Richland County won its vote because they most nearly met the requirements, the chief purpose of which was to select a city and county which should be fairly typical of the average of American life, the city to have a population of between 20,000 and 30,000 and the county of between 50,000 and 60,000. Some of the specific conditions laid down were that a normal percentage of the population should be engaged in manufacturing; there should not be any strikingly predominant racial stocks; there should be a variety of industries; the surrounding area should be an agricultural territory; the community should be located in the birth registration area and vital statistics should be fairly complete; the mortality of infants and children should not be strikingly abnormal. Enthusiastic pledges of cooperation have come from the medical profession, business and labor representatives, city and county officials, women's organizations, churches, civic and social organizations, etc. Dr. Walter H. Brown, health officer of Bridgeport, Connecticut, also distinguished for service with the Red Cross and later with the American Commission for the Prevention of Tuberculosis in France, has been secured to direct the demonstration.

Senate Deadlocks on Volstead Amendment.—As stated previously in THE JOURNAL, House Bill 7294, known as the Willis-Campbell bill, passed the House of Representatives, June 27, and the Senate, August 8. On account of a few differences in the form of the bill as it passed the two houses, it was referred to a conference committee in accordance with congressional procedure. The conference committee agreed on a report, which was presented in both the House and the Senate on Tuesday, August 23. The only essential difference in the two bills is that the Senate added Section 6, forbidding any officer of the United States to search property or premises of any person without a search warrant. The provision has no effect on the privileges of physicians in prescribing alcoholic liquors, which are as stated in the previous editorial. The conference committee agreed on a compromise prohibiting any search of a private dwelling. The House accepted the committee's report, thereby adopting the bill as amended. In the Senate, however, a protracted discussion developed on the constitutional provision regarding the right of search and seizure, a purely technical legal question, the discussion of which prevented the Senate from adopting the conference report before the time set for adjournment. As a result, the bill is still in the hands of the conference committee and will so remain until after the reassembling of Congress. Under the parliamentary rules of Congress, however, only those points on which there was a disagreement between the two houses are open to further discussion. The main provisions of the bill have been adopted by both houses by a large majority. On account of this situation, Secretary Mellon has refused to issue the regulations drawn up by the Bureau of Internal Revenue following Attorney-General Palmer's decision that beer could be dispensed as a medicine. Mr. Mellon has pointed out that the antibeer bill had passed both branches of Congress and that the question of the right of search and seizure, which prevented its final enactment, had no bearing on the use of beer as a medicine, which question had been finally settled by the action of Congress.

LATIN AMERICA

Election of Officers.—The Sociedad de Cirugia of Bogotá elected in July the following officers: Dr. Martin Camacho, president; Dr. J. Aparicio, vice president; Dr. J. Rico, treasurer and Dr. R. Amayo Arias, secretary.

Centennial of the Foundation of the University of Buenos Aires.—The graduation exercises of the National University of Buenos Aires were held, August 11, at the same time as the ceremonies commemorating the centenary of the foundation of the university.

Personal.—Dr. Buenaventura Cádiz of Valparaiso has been appointed superintendent of the Hospital of San Agustin.—— Dr. Fernando Calderón, dean of the Medical School of the Philippines and director of the General Hospital of Manila, is now in the United States, visiting medical centers and schools.

Plan for a New Medical School in Chile.—The Concepción University authorities have submitted, at the request of the Chilean government, plans for the establishment of a medical school at Concepción, Chile, in which there may be studied the first two years of medicine. It is estimated that the original expenses will amount to 540,000 pesos (about $54,000).

Congress and Conference Week at Montevideo in October.—The Second South American Congress on Dermatology and Syphilography is to convene at Montevideo, October 9-16, of the current year, as already mentioned in these columns. The same week will witness the meeting of the Second National Medical Congress of Uruguay; the third reunion of the South American Conference on Hygiene, Microbiology and Pathology, and also a conference on "medical pedagogics." to which the medical faculties of all the South American universities have been officially invited.

Prizes Offered by the Havana Academy of Sciences.—The *Revista de Medicina y Cirugia* of Havana gives the details of the competition for three prizes offered by the Academia de Ciencias Fisicas y Naturales for the best articles on "The Problem of Acidosis in Children"; or a discussion of the theme: "Is the unconscious memory—as E. Hering asserts—the most important property of organized matter?" The Cañongo prize is offered for the best article on any theme selected. The competing articles must be in Spanish, English or French and sent with name in sealed envelop. The competing articles must be received before March 31, 1922. They become the property of the Academy whether they win a prize or not. The Suárez Bruno prize is 300 pesos, the Gordon prize a gold medal, and the Cañongo prize 50 pesos.

Day Nurseries in Factories.—By a law of Chile, signed, March 22, owners of factories employing fifty or more women over 18 years of age are given six months in which to provide day nurseries for the children of their women employees. Plans are to be approved by the National Bureau of Public Health. Rooms must be well lighted and ventilated, with accommodations for not more than twenty-five children, and each room used for this purpose must be in charge of a competent person, paid by the employer. A medical certificate, which may be obtained free from a hospital or dispensary physician, is required for the admission of the children. The only bar is a contagious disease. Every mother of a child less than a year old, may have two half-hour periods each day, in addition to the regular rest period, for nursing her child.

FOREIGN

Bookkeeping for Physician's Wife.—A three hour course has recently been held at Frankfort-on-the-Main designed to teach the wives of physicians how to do the bookkeeping for their husbands.

Physicians in France.—The *Gazette Hebdomadaire* states that of the 22,990 physicians in France and its colonies, 5,415 are located at Paris. The total population of France proper was 39,601,509 in 1911.

Hospital News.—Work will be started this fall on the buildings for St. Luke's International Hospital, Tokyo, which was established and has been maintained for many years by the Protestant Episcopal Church of the United States.

International Epizootics Conference.—The recent conference at Paris to discuss ways and means to stamp out disease and prevent epizootics among domestic animals and cattle was attended by delegates from forty-three nations, according to the report in the *Annali d'Igiene*. A permanent international committee was appointed to organize a system of international prophylaxis, to work subsidiary to the International Bureau of Hygiene at Paris.

Venereal Disease at Paris.—The *Presse Médicale* states that syphilis is being encountered with such frequency at Paris since the war that the municipal authorities have arranged for additional evening special consulting stations in six of the public hospitals, including the Charité and Boucicaut. The editorial adds that the location and hours of these stations should be placarded in all the comfort stations, etc. These now are given over to the posters of charlatans claiming to cure venereal disease in a short time.

Health Week.—Under the patronage of the king and queen, Health Week will be generally observed throughout Great Britain, October 9-15. It is suggested that "'health, happiness and efficiency' and the consideration of what each individual can do for himself and his neighbor in securing a healthy life" should be the dominant ideas. The movement was instituted in 1912, and in 1914 the Royal Sanitary Institution appointed a committee to undertake the central organization. Local committees control the local celebration in each center, which is necessarily governed by the resources and needs of the locality.

Permanent International Committee on Military Medicine and Pharmacy.—At the conclusion of the recent International Military Medical Congress, a permanent committee was appointed to prepare for the next congress and to centralize and adopt standards for promoting the physical welfare, etc., of recruits. The members of the committee are Bainbridge for the United States; Uzac, France; Van Baumerghen, Spain; Stirling, England; Caccia, Italy; Da Fonseca, Brazil, and Thomann, Switzerland, with Wibin, Belgium, president, and Voncken, Belgium, secretary. The latter is co-editor, with Stassen, of the *Archives Médicales Belges*, for seventy-four years the organ of the medical department of the Belgian army. Voncken's address is Direction Générale du Service de Santé de l'Armée Belge, Brussels.

Reciprocity Between Germany and Spain Advocated.—The *Deutsche medizinische Wochenschrift* relates that the Berlin Medical Society at a recent meeting decided to appeal to the government to enter into agreements with the government of Spain for reciprocity of medical degrees. Dührssen stated that when he was in Brazil recently, the Brazilian minister of public instruction assured him of his desire to have a similar treaty of reciprocity drawn up between Brazil and Germany. The German minister has expressed his willingness to cooperate and enter into negotiations with the governments of all countries in which the settling of German physicians can be regarded as feasible. Our exchange states that it has been advocating the principle of reciprocity since 1899, when its first special article on the requirements for practice in foreign countries was published.

Fourth Annual Meeting of the French Interns.—The Fourth Congrès de l'Internat Français, recently held at Toulouse, discussed among other subjects the necessity for interns being insured against professional accidents, and appealed to the authorities that this should be done in all the public hospitals. The question of the interns' treating beneficiaries of workmen's compensation was referred to a legal authority for discussion at the next meeting. The material interests of the intern were also the topic of discussion, and the question of interchanging interns between the public hospitals of large cities was deliberated. Toulouse and Lyons were particularly interested in the question of three month interchanges. The next congress is to be held at Lille in 1923. Prof. R. Cruchet of Bordeaux is the secretary of the organized interns.

Congress of Catalan-Speaking Physicians.—On June 26-28, there was held in the city of Gerona the Fourth Congress of Catalan-Speaking Physicians. The congress was well attended by physicians from Catalonia, Balearic Islands, and Valencia, Spain, and the Oriental Pyrenees, and Roussillon, France. The subjects discussed were present status, diagnosis and therapy of parasyphilis and chronic intestinal stasis. The essayists included Drs. Farruella, Pujol and Brull of Barcelona and Professors Bartrina, Morales and Nubiola y Peyri. In the section on surgery Dr. Corachón, head of one of the services of the Hospital General of Barcelona, presented a paper on "Cineplastic Amputation, Cinematization of Stumps and Application of Prosthetic Apparatus," which attracted much attention. Dr. Corachón is the first person who has devoted attention to this subject in Spain. Other papers presented which were much discussed were Prof. Ribas y Ribas' "Anesthesia of the Gasserian Ganglion," and Professor. Prug's "Gastrotomy by Transplantation." In connection with the congress there was held a very complete exhibition. The fifth congress will be held in 1923 in the city of Lérida. Dr. Farruella was elected president. The official subjects to be discussed will be compound fractures and brain hemorrhage.

Deaths in Other Countries

Dr. **F. W. N. Haultain,** on staff of Royal Maternity Hospital, Edinburgh; one of the first in the country to advocate the practice of early rising in puerperium; author of "Practical Handbook of Midwifery," and also made many con-

tributions to the literature of obstetrics, printed in the medical journals, aged 60.——Dr. **A. B. R. Myers,** awarded gold medal for Alexander prize essay on the "Etiology and Prevalence of Diseases of the Heart Among Soldiers," also Suakim medal with clasp for service in the Sudan Expedition of 1885, aged 83.——Dr. **W. W. E. Fletcher,** twenty-five years service as medical inspector, local government board, London, aged 64.——Dr. **D. Gerhardt** who was called in 1911 to be the successor of von Leube in the chair of clinical medicine at the University of Würzburg, one of the leading German internists of the day, aged 56.——Dr. **E. Perrier** of Paris, an authority on zoology and member of the Academy of Medicine.——Dr. **P. Bérard** and Dr. **J. Blechmann,** also of Paris, frequent contributors to medical literature.——Dr. **J. E. Ferrán,** professor of surgery at the University of Havana, and connected with various hospitals and dispensaries and with the municipal public health service, founder of the sanatorium "Cuba."

CORRECTION

Prophylaxis and Serum Therapy of Yellow Fever.—In the article by Dr. H. Noguchi on this subject which appeared in THE JOURNAL for July 16, 1921, page 181, there are several errors in the text as well as in the charts. These errors appeared also in the original manuscript. Corrections of these errors have been made in the reprints of the article, which Dr. Noguchi will be glad to send to those interested. He may be addressed at the Rockefeller Institute, Sixty-Sixth Street and Avenue A, New York.

Government Services

Resignations from Army Medical Corps

Resignations of Major Calvin D. Cawles, Jr., and First Lieut. James M. Odell, Medical Corps, U. S. Army, have been accepted by President Harding to take effect on their arrival in the United States from foreign service.

Health of the Army

For the week ending August 13 there were in the Army 116,485 men in United States and 13,487 men in Germany, with a noneffective rate per thousand of 29.34 for troops at home and 31.74 for troops abroad. Of troops in the United States the most common causes of illness were the common respiratory diseases with 128 cases; venereal diseases, 113; malaria 38, and common diarrhea 36. Among the troops abroad there were 35 new cases of venereal disease with only one or two cases of any other form of illness. The malarial rate is still rising and is much higher than the normal rate for August. Twenty of the 38 cases of malaria were reported from the Seventh Corps area.

Medical Corps Reserve Units

Medical Corps reserve units have been established in nine additional Class A medical schools of the country, where students will be given courses to join the Army Medical Reserve Corps. The list includes:

University of Pittsburgh, Pittsburgh, Pa.
Baylor University, Dallas, Texas.
University and Bellevue Hospital Medical College, New York.
Cornell University, New York.
State University of Iowa, Iowa City, Iowa.
Western Reserve University, Cleveland.
Ohio State University, Columbus, Ohio.
University of Buffalo, Buffalo, N. Y.

Three assignments of officers to serve as professors of military science and tactics from the Medical Corps of the Army have been made. They are Major Ralph G. Devoe to University and Bellevue Hospital Medical College; Major Charles W. Farr, Medical Corps, retired, to University of Buffalo, and Major Harry Beery to the Ohio State University. Steps are now being taken by the Surgeon-General of the Army looking toward the assignment of officers in a similar capacity to the other medical schools mentioned in the list. To date medical reserve corps schools have been established in eighteen medical colleges. Under the allowance made by the Secretary of War it is expected that about five more medical schools will be permitted to open courses.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Aug. 8, 1921.

Jewish Vital Statistics

To the *Jewish Chronicle* Dr. R. N. Salaman has contributed an interesting review of Jewish vital statistics. The mortality of the Jews is everywhere lower than that of their Gentile neighbors. Though hounded on all sides, and herded together as they are in the Russian pale, living under the most insanitary conditions in Europe, the Jewish death rate is far less than that of their neighbors, no matter under what conditions they live. Thus, in Prussia in 1908, the Jewish death rate was 13.68 and the non-Jewish 17.92. In Russia, in 1905 it was 14.5 as against 30 for the general population. Even in Galicia, where the poverty and squalor of the Jews reaches the limit, the death rate is still less than among the non-Jews. Between 1897 and 1900 the following relation existed between population, births and deaths, in Galicia:

	Population	Births	Deaths
Roman Catholics	48.39	43.53	42.69
Greek Church	42.23	45.42	58.76
Jews	11.66	10.50	7.99

while in the cities the death rates were:

	Jews	Christians
Lemberg, 1907	21.3	27.65
Cracow, 1902	20.5	36.9

Turning to the new world, Fishberg gives an equally good account of the Jewish death rate in New York. Except for infants under 1 year in eastern Europe, the advantage the Jews have in the death rate holds good at all age periods. Rosenbaum calculates that the Jews of London as well as Great Britain have an exceptionally favorable death rate.

Two facts help to explain this superiority: (1) The Jew, no matter in what part of the world, is free from alcoholism, and this freedom has been but little modified by his assimilation with the west. In the London Hospital a Jewish alcoholic is one of the rarest events of the year, while the Jewish Board of Guardians of London, which deals with some 1,100 new cases of poverty a year, finds it unnecessary to make the smallest provision for destitution arising from alcoholism. Saleeby, speaking of the Jews, says: "The practically complete immunity of their parenthood from alcohol is one of the great factors that explain the all but unexampled persistence of the Jews, and their present status in the van of the world's work and thought." The second point is: There is much less syphilis among Jews than among others. Among observant Jews it may be discarded as a factor affecting their vital statistics, and even among Jews who are no longer influenced by Judaism as a code of life the incidence of this disease is still low. This is due to the Jewish traditional family life and to their relative higher standard of education. Circumcision is possibly some protection, but there seems to be no reason to believe that the relative immunity is due to anything other than a moral environment. Of late years it seems that the chastity of the young Russo-Jewish women in the east end is not what it used to be even ten years ago. Formerly the fact that a patient at the London Hospital was a Jewess was sufficient to dispel even a suggestion of venereal disease. Today this is no longer true. The young men of Russian origin are also said to be more infected than ten years ago. This change is a direct result of the economic degradation produced by the Russian persecution. In general the Jewish youth of today is little if any better than the Gentile youth of the corresponding social class. Fishberg records a similar lapse from the traditional standards in the New York Jewry.

In respect to tuberculous diseases the Jew exhibits a paradox. A town dweller of generally inferior physique, living, at least in many parts, under profoundly unhygienic conditions, pursuing occupations which for the most part confine him to close workrooms, it would be thought that he would be an ideal victim for the ravages of the tubercle bacillus. But he is more resistant than any of the peoples among whom he lives. Statistics for Budapest in 1901-1905 show that the mortality per thousand for pulmonary tuberculosis was 44.15 for Catholics, 20.06 for Jews, and 39.27 for persons of other faiths. In Vienna during 1901-1903 for all forms of tuberculosis per thousand the mortality was 49.6 for Catholics, 32.8 for Protestants, and 17.9 for Jews, while to pulmonary tuberculosis there succumbed per thousand: 38.8 Catholics, 24.6 Protestants and 13.1 Jews. In Tunis, 1894-1900, the mortality was: 11.3 for Arabs, 4.13 for Europeans, and 0.75 for Jews. Attempts to explain this immunity have been made in different ways. Some urge the absence of alcoholism as robbing the tubercle bacillus of a valuable ally. Others regard the immunity as due to the dietary laws; this argument, however, is untenable, for man is usually affected by bovine tubercle not through meat, but through milk, and this in the earliest years of life at a period in which the Jewish mortality is so extremely favorable. For almost 2,000 years the Jews have been subjected to an environment favorable to the development of tuberculous disease. The susceptibility to tuberculosis has been shown to run in families. It is not unreasonable to suppose that the susceptible strains have been eliminated and that the insusceptible have survived.

Sir Arthur Keith on Immortality

The conferring of knighthood on Professor Keith is universally regarded as a well merited recognition by the government of a great anatomist, physiologist, pathologist and anthropologist who is the most philosophical biologist of the day. In a recent press interview he has stated that we hope some day to know what life is, but at present are so ignorant of its mechanism that we cannot say. He does not regard eternal life as impossible, but as undesirable. "The desire for the extension of the span of human life is a form of madness, and if people would only think of the conditions of life they would never entertain the idea. Old age is not a disease, but part of the essential machinery of nature for running human life. Look on nature as the business manager of human life. What nature requires is to keep life going. Nature aims at the species, not at the individual. Nature has built our bodies in such a way that we should have short lives. The whole system is built up on a period of short existences. In trying to extend the span of life you are right up against nature's basal law. Her whole idea is to use young and vigorous lives and kill off the old. Civilization has tended to extend the span of human life. Animals like the gorilla and anthropoid apes that are nearest to man are old at 40. The aborigines of Australia and Patagonia were old at 60. Human life is longer now. Experience points to the fact that life might be extended by at least another decade. But is it desirable? What we want now is young, healthy people. What we need is to extend the period of their vigorous life. This necessity is now being generally recognized, and it is the rational view. I will give you two similes which I think will appeal to the general public. Regard life as a restaurant, and nature as the manager. People rush in at midday to lunch. It is crowded; there are no seats. Why? Because some people who have finished their meal are lounging about and occupying the seats. The manager says: 'I must make regulations. I must limit them to half an hour to make room for the others.' Nature in the same way has put a limit to the life of man. Another simile: You know the principle of the continuous performance at the cinema. You pay your money and see the show round. You are then supposed to come out, but some will stay. The second time you see the show you will be bored; the third time you go mad; and the fourth time you may commit suicide. Human life is something like that. People crave after human immortality. They have never thought what it means."

BELGIUM

(From Our Regular Correspondent)

Aug. 10, 1921.

Congress of Medicine and Pharmacy as Pertaining to Military Organizations

The sessions of the first International Congress of Medicine and Pharmacy as Pertaining to Military Organizations, which were held in the halls of the Palais Mondial, July 15-20, were a pronounced success for the medical corps of the Belgian army. Having but recently emerged from the great upheaval caused by the World War from 1914 to 1918, with its ranks diminished and impoverished, the medical corps nevertheless gave evidence of its vitality in bringing to a fruitful issue this great project, the conception of which dates back approximately one year; namely, the idea of holding a convention in the Belgian capital of the official representatives of the medical corps of all the armies of the world. This was not an easy task; especially the coordination of the suggestions coming from all sources, in order to reap the fruits of widespread cooperation. The results reached by this first congress are tangible and the conclusions adopted will have almost the force of law. The most vital problems of the present day were discussed by the most competent authorities.

Dr. Wibin, inspector general of the army medical corps, gave a short historical account of the arduous struggles that the army medical corps had had to face in the past before it reached its present state of efficiency, and he also outlined the plans for future development. An outline of the conclusions adopted by the congress in regard to the questions brought up for discussion follows:

The General Organization of the Army Medical Corps and Its Relation to the Red Cross

The congress held the opinion that all measures in regard to the adaptation of medical knowledge to military organizations, whether during peace or war, should be adopted only after close cooperation between the commanding officers and the army medical corps. In order that in all measures, as far as the exigencies of war will permit, account may be taken of medical considerations, without which any sanitary organization will be deficient, it is necessary that representatives of the army medical corps shall be members of the staffs with the same rank as the officers of the fighting forces, in order that they may have a voice in deciding questions of interest to the medical department. It is indispensable that in every large military unit, under the authority of the supreme command, representatives of the army medical corps, working in accord with such command and in harmony with other services, shall have the power to elaborate measures pertaining to the functioning of the army medical corps in all its capacities, and shall also see to it that its orders are transmitted and properly executed.

In time of war it is essential that technical medical consultants, chosen from the ranks of physicians, surgeons, hygienists and chemists, and eminently qualified by their scientific training, shall be associated with the representatives of the army medical corps that are responsible to the supreme command. All the medical personnel of the nation, practicing in any branch of the profession, should be invited to prepare for some special service, so that in time of war there may be an adequate number competent to fill the various posts, and competence should be the sole factor in

the choice of incumbents. Facilities of a material nature utilized by the army medical corps for the transport, evacuation and treatment of the wounded and for the make-up of the sanitary formations and the technical units attached thereto, should be planned in accordance with the latest progress in industry and science. An adequate equipment from the quantitative as well as the qualitative standpoint should be assured at the beginning of hostilities. In the organizations needed for the study of chemical questions that arise in all armies it is essential that account should be taken of the special competence that army pharmacists have acquired.

War Gas

In time of war it is of paramount importance that special sanitary formations be organized for the treatment of the gassed; these should be mobile units and should be located near the front. They would be analogous to the "Z" hospitals of the French army. The treatment of acute cases should be intrusted to medical specialists who are thoroughly acquainted with intoxication by gas. A distinctive mark such as would be readily seen should be placed on the diagnosis tag of every soldier intoxicated by gas. This mark should not be affixed until the diagnosis has been confirmed in a hospital especially equipped for the purpose. It is quite exceptional to observe pulmonary tuberculosis as the direct result of intoxication by gas. The permanent affections that the medical expert should take into consideration in establishing the percentage of disability of men formerly gassed may be summed up under these heads: (1) tachycardia, irritable heart; (2) chronic respiratory affections (emphysema, asthma, pulmonary cicatrices, etc.); (3) more or less extensive loss of teeth; (4) neurasthenia and neuroses, and (5) ocular affections (rare and easily recognized). In establishing the percentage of disability, account should be taken of the fatigue effect of chronic respiratory affections (obliterative, fibrous bronchiolitis; emphysema, etc.) on the heart; also of the state of lessened resistance of the lung toward ulterior, acute pulmonary infections. The permanent lesions just enumerated need not be taken seriously into account except after a grave, acute intoxication necessitating prolonged hospitalization.

Lessons of the War in the Treatment of Limb Fractures

The congress held that, of the determining principles in the treatment of fractures that may be derived from the lessons of the war, it is well to emphasize the following: (1) the absolute necessity of constant and frequent roentgenographic control, and if need be, at the bedside; (2) the necessity of proportioning the removal of splinters from exposed fractures in accordance with the need of drainage and surgical disinfection; (3) the primary importance of the surgeon regulating the treatment from the first day in accordance with the future functioning of the member and of utilizing for this purpose all the resources of physiotherapy; more particularly mobilization as early as possible; (4) the fact that the indications for the classic treatment of fractures by immobilization in plaster casts are becoming more and more rare; the old appliances of the prewar period should be abandoned and should be replaced by apparatus that proved its standard value in the armies—more especially, walking apparatus and apparatus for continued extension, with or without suspension; (5) the necessity of reducing, in time of war, apparatus for transport to a few elementary types—strong, of simple construction, with interchangeable parts and easy of adjustment, carrying out, as far as feasible, the extension idea, and (6) the desirability of organizing in peace times, in the large industrial and urban centers, special services analogous to those required during war and provided with competent personnel and the necessary equipment.

The Antituberculosis Campaign in the Army

The congress gave expression to the conviction that, in order to be effective, the antituberculosis campaign in the army must be based primarily on the rigorous application of collective and individual hygienic measures the utility of which is universally recognized and which concern more particularly: quartering in barracks, the food supply service, physical education, prophylaxis against the diseases to which troops are susceptible; the antialcoholism campaign, etc. The antituberculosis campaign should include education not only of the staffs but also of the troops, by means of leaflets, talks, formal lectures, etc. By reason of the special conditions of evolution of tuberculosis, it is advisable to provide for each man an individual sanitary register and a medical record setting forth the personal and family history of the soldier and his state of health during the period of his active service. It is desirable that such documentation should be extended to the period of service in the reserve. It is indispensable that all men be subjected to rigid and repeated examinations, particularly during the first few months following mobilization. No person suffering from tuberculosis should be admitted to the army. Rejections should be made not only during the process of recruiting but also immediately after mobilization. For prophylactic reasons, the temporary or final removal of all who present any manifestations of tuberculosis is required. It would likewise be desirable that studies be undertaken with the view to determining the practical value of the various numerical indexes and schemes for biometric evalution that have been proposed, in order to estimate the degree of robustness, more particularly with reference to tuberculosis. It is well to organize special services for the more efficient supervision of suspects. A practical course of instruction in the diagnosis of tuberculosis should be given for the benefit of members of the army medical corps. In aid of national prophylaxis, a permanent connection should be established between civilian antituberculosis organizations and the military authorities. The army should notify the civil authorities without delay of all soldiers who are dismissed from the service by reason of tuberculosis.

The Antivenereal Campaign

The congress, having secured evidence of the extent and the gravity of the peril of venereal disease in the army, is of the opinion that it is of interest not only to the army but also to the individual and to society in general that the most rigorous antivenereal campaign possible be waged, in connection with which it offers these formal recommendations: I. Venereal diseases—infectious diseases—should be combated above all among the civilian population, in order that all the foci of infection may be reached and thus tend to prevent the contamination of the army. II. In the armies, the antivenereal campaign, in all its forms, should be organized or changed at once to comply with the principles hereinafter stated: A. Educative measures as extensive, as early and as comprehensive as possible. B. Measures having for their purpose the preservation of sound bodies and minds; (1) provisions for amusement and entertainment: recreation rooms, sport activities, etc.; (2) supervision of sources of infection, working in harmony with the civil authorities, and (3) conservative prophylaxis by placing at the disposal of soldiers such things as: individual sanitary toilets, individual combs, brushes, soap, etc. C. Measures concerning patients: (1) early detection of the sick; (2) isolation of contagious cases; (3) treatment by the most effective means in specialized services; (4) follow-up supervision of patients, and (5) in the case of patients with venereal disease who may be dismissed before they are entirely cured, imparting of the necessary information in regard to the places where they may secure treatment in civil life.

Purification and Sterilization of Drinking Water

During the war (1914-1918), the purification of drinking water for the use of the allied armies was usually accomplished by means of chlorin (solution of chlorinated potassa, chlorinated lime, solution of chlorin, etc.). The very extended use of chlorin as a purifying agent has shown that it presents important advantages. The question of the amount of chlorin to be employed, although established in practice in an approximate manner, nevertheless has not been quite definitely settled. Various devices have been tried, most of which would be utilizable in the future according to the indications furnished by the situation. When the supply is turbid, special methods must be used to clarify the water before it is treated. In the present state of our knowledge the utilization of chlorin for the purification of the water supply does not seem to be superseded. However, when it is possible we may consider using other agents than chemical products. Further investigations should be made to establish the value, especially, of certain physical methods of sterilization, more particularly those based on the use of ultraviolet rays or of ozone.

Countries Represented at the Congress

Twenty countries sent official representatives to this meeting, generally the commander of the medical department of the army or navy, or both. The international committee of the Red Cross was represented by Professors D'Espine and Reverdin of Geneva, and the League of Red Cross Societies by Colonel Ritchie. The delegates from America were: from the United States, Dr. W. S. Bainbridge, commander medical corps naval reserve force; from Mexico, Dr. L. Rivero Borrel; from Guatemala, Dr. M. Arrayo; from Brazil, a group of four army medical officers, headed by Maj. J. A. de Souza Ferreira and Dr. J. F. Meira; from Argentina, Lieut.-Col. N. Gaudino, and from Chile, Dr. M. Donozo and Dr. Cifuentes. China was represented by Maj. Gen. S. H. Chuan and Japan by Dr. K. Oyama.

PARIS

(From Our Regular Correspondent)

Aug. 5, 1921.

Vital Statistics for 1920

The minister of labor recently published the vital statistics of France for 1920. This statistical report is all the more interesting because, from 1914 to 1919, vital statistics were limited to the seventy-seven departments not affected by the war, and the results thus obtained did not offer any serious basis for calculation, on account of the shifting of the population. In 1920, for the first time since the war, records of the total number of births, marriages and deaths throughout France, including the three departments in Alsace and Lorraine, were collected. The figures given for the ninety departments in 1913 were: births, 790,355; deaths, 731,441; excess of births over deaths, 58,914; marriages, 312,036. For 1920 the records show: births, 834,411; deaths, 674,621; excess of births over deaths, 159,790; marriages, 623,869. The demographic situation in the ninety departments of France was accordingly much better in 1920 than in 1913. The number of marriages has doubled. The number of births (living children) shows an increase of 44,056. On the other hand, there were 56,820 fewer deaths in 1920 as compared with 1913. Thus we note an excess of births over deaths which amounts to 159,790, while during the period from 1914 to 1919 there was an excess of deaths over births, and in 1913 the excess of births over deaths was only 58,914.

Medical Fees for Care of Disabled Soldiers

In a previous letter I mentioned the termination of the disagreement between the government and the medical profession relative to the establishment of a schedule of fees for the remuneration of physicians who give to disabled soldiers the care and treatment they are entitled to by virtue of the pension law. The *Journal officiel* has just published a decree pertaining to the decision reached in the matter. This decree differentiates between three classes of physicians. Those living in localities with less than 5,000 inhabitants, which takes in the majority of the rural communes, may exact a fee of 5 francs for office consultations and 6 francs for home consultations. In localities of from 5,000 to 100,000 inhabitants, the fee for office consultations will be 7 francs, and for home consultations, 8 francs. In cities of more than 100,000 inhabitants, the office consultation fee will be 8 francs, and the home visit, 10 francs. Special provisions for still higher fees are made to apply to suburbs of large cities where the cost of living is exceptionally high. As regards the liberated regions, special provisions have also been made on account of the high cost of living and the peculiar difficulties encountered.

Myron T. Herrick the Recipient of Medal Betokening the Gratitude of the French People

The *Journal officiel* announces that the médaille de la reconnaissance française has been awarded to Hon. Myron T. Herrick, the newly appointed American ambassador to France, with the following mention: "The Hon. Myron T. Herrick, of American nationality, vice president of the Société France-Amérique, has used his great influence for the service of France by assisting in the creation of several welfare enterprises during and since the war, the success of which undertakings was assured by reason of his support."

Dangers from Frosen Eggs

The heat that has prevailed in France for several weeks past has been particularly unfavorable for the preservation of foodstuffs. Many cases of poisoning have occurred from eating pastry and cakes with "cream" fillings. Since these poisonings have been found to be due to eggs that have not been properly inspected, Monsieur Martel, chief of the bureau of veterinary inspection for Paris and the department of the Seine, has just made an interesting inquiry into the condition of cans containing frozen opened eggs, intended for the use of bakers and biscuit manufacturers. In many cans were found mold, streptococci, staphylococci and *B. coli*. In the face of such results, Monsieur Martel has asked the council of public health to exercise strict supervision over importers, merchants and cake and pastry bakers. Frozen eggs are imported from China into Europe, and especially into the United States. The eggs are opened, put into cans and frozen at a temperature of —15 C. Monsieur Lindet, member of the Academy of Sciences, who has made a special study of the question, states that frozen eggs must not be allowed to thaw before delivery nor a long time before being used. Sanitary precautions must be taken in the manipulation and transportation of frozen eggs, and they should not be used for any other purpose than biscuit making, since here prolonged baking at a high temperature destroys the bacilli with which they are contaminated.

Death of Prof. Edmond Perrier

The field of natural sciences has suffered a great loss in the death of the famous zoologist Edmond Perrier. He was born in Tulle, department of Corrèze, May 1, 1844. He was appointed, in 1867, associate professor at the university, and the following year became assistant naturalist to the museum of natural history. In 1869 he became doctor of natural sciences and was appointed in 1876 to a professorial chair and also served as administrator of the museum. In 1892 Perrier was elected member of the Academy of Sciences in the department of zoology, to succeed Quatrefages de Bréau, and in

1898 he was in turn elected by the Academy of Medicine as associate member. In 1900 he was appointed director of the Museum of Natural History, a post that had become vacant through the death of the famous naturalist Milne-Edwards. For nearly twenty years he remained director of this center of learning, for such the museum is entitled to be called. He founded one of the first marine laboratories, for the study of biology, on Tatihou Island in the department of Manche. He became president of the Academy of Sciences in 1913 and received the title of doctor *honoris causa* from Oxford University. Perrier wrote a Traité de zoologie which has long been considered a classic, and a series of other smaller works: La terre avant l'histoire; La philosophie zoologique, etc.

Centennial of First Description of Paretic Dementia

The Société médico-psychologique, the Société de médicine mentale, and the Société de psychiatrie, met recently in plenary session and agreed upon the celebration, in 1922, of the centenary of Bayle's discovery of general paralysis. Coincident with this event, the first annual meeting of the psychiatric societies will take place; for the three societies have decided to organize an annual meeting of all psychiatric societies similar to that of the annual meeting of the Société de neurologie of Paris.

BUENOS AIRES

(From Our Regular Correspondent)

July 25, 1921.

Influenza

The influenza epidemic has begun to decline. There was a large percentage of bronchopneumonia and pneumonia cases. At a time the number of influenza cases treated each day, free of charge by the Public Assistance authorities, rose to 220 a day and that of pneumonia to seventy cases.

At the Ramos Mejia Hospital a meeting was held to discuss this subject. The only bacteriologic studies were those reported by Dr. César Pico, who has not found the Pfeiffer bacillus, but pneumococci, streptococci, *Micrococcus catarrhalis*, etc. In his opinion these data and the clinical symptoms suggest that the disease was probably influenza nostras and not the pandemic influenza. Dr. J. Méndez again asserted that the Pfeiffer bacillus, the pneumococcus and the streptococcus are just one and the same germ. Dr. Méndez is the manufacturer of a vaccine called "haptinógeno" which knowing physicians consider analogous to the other pneumococcic vaccines, but which among the people here enjoys an unbelievable prestige as a preventive and a remedy for catarrhal affections. Of late, however, its reputation seems to be decreasing.

Dr. Sharpe's Lecture

Dr. William Sharpe, professor of neurology and surgery at the Policlinic Medical School, New York, is now in Buenos Aires. While other American surgeons who visited our city stayed here hardly time enough to see some of the hospitals, Dr. Sharpe has established close relations with surgeons in all hospitals, scientific societies and medical professors. On the 21st he gave a lecture in Spanish at the medical school. Competent physicians are always welcome here, as their visits tend to establish a closer fellowship with American medicine. Therefore the news that an important group of American physicians will visit this city next year has been received with much approval. It would be specially advisable that, besides clinicians and surgeons, there should also come physiologists, biologists, pathologists, bacteriologists and sanitarians.

Kraus Goes to Brazil

Professor Kraus from Vienna, who has been the director of the bacteriologic institute of the Argentine Public Health Department, will complete his term next August. The Institute of Butantan (São Paulo, Brazil) has now put in a bid for his services. Kraus was the organizer of the institute, which now provides practically all the serums and vaccine used in this country.

New Schools of Medicine

The medical schools are still struggling with difficulties. Even that at Buenos Aires is facing three serious obstacles: (1) an excess of students, over 1,000 each, in the first and second years; (2) lack of practical teaching, owing to the excess of students, insufficient laboratories and lack of personnel, and (3) inadequate control, as the examinations are often faulty and perhaps too lenient. At the Rosario medical school there is a strike, and the students have asked the government to remove the acting director. A number of professors have not been appointed as yet, and so far only the first year classes have started. At La Plata School the second year courses have not been organized as yet. Besides, there has been appointed as acting professor of physiology a physician who holds the same position at the Rosario school and the Buenos Aires School of Pharmacy, so he is compelled to give classes in three different cities, two of which are 36 miles and 180 miles, respectively, from Buenos Aires.

New University

The much vaunted and not as yet organized Universidad del Litoral is receiving very hearty support from the national government. There have been appropriated three more millions for its establishment, one million being intended for the School of Medicine of Rosario, which has not yet begun its courses, although the year is far advanced.

BUDAPEST

(From Our Regular Correspondent)

July 12, 1921.

The Fate of Pawlow

Different rumors have been in circulation with regard to one of the greatest scientists of Russia, Dr. Pawlow, who filled the chair of professor of physiology for more than twenty-five years at the St. Petersburg University. About a year ago a Vienna daily paper announced that Pawlow had been removed from his chair by the soviet government because he could not accommodate himself to the new régime. Another paper stated that he was sentenced to death because the tone of a lecture which he delivered at a popular meeting was hostile. Now a Budapest newspaper prints the information obtained from a medical man recently returned from a Russian prison. The last rumor dates from December, 1920, at which time Pawlow was yet alive, though most Russian papers wrote of him as being dead; the poor gray savant had suffered the greatest imaginable misery. He asked food from a friend in Kief when on the verge of starvation. He complained to his friend that for him, at least, times had extraordinarily changed. While formerly it was his ambition to work in the laboratory, he would be happy to peel a few potatoes, but even this modest food was wanting. Through the Kief medical society, relief was obtained without delay, but Pawlow, to whom physiology is so much indebted for his epoch making researches and discoveries, could not bear the misery of hunger and cold longer than January, 1921. He was taken to a hospital, where he died after a few days.

A German Prise Won by a Hungarian Physician

The Gesellschaft für Stoffwechsel und Verdauungskrankheiten has set a prize of 1,000 marks for the best work (dissertation) on digestive troubles. The prize has been won by a Hungarian practitioner, Dr. Laszlo Friedrich. The title of the dissertation was "The Influence of Chewing and

of the Salivary Glands on the Function of the Healthy and the Morbid Stomach." The judges of the competition were Professors Noorden, Bergmann and Boas.

Dog Meat as Food in Germany

According to the report of the German imperial slaughter houses and meat inspection offices during the second quarter of the year 1919—that is, during three months—the meat of 3,642 dogs was subjected to inspection, 2,301 in Saxony alone. The number of horses slaughtered was twice that of peace time. There was such demand for horseflesh that the number slaughtered could easily have been ten times that of peace time; but there was a great shortage of horses in Germany owing to difficulty of importation. With the rise in the number of horses slaughtered, there was a decrease in the slaughtering of calves and pigs. The traffic in these animals was not more than one-fortieth that of peace time.

Treatment of Night Terror in Children

According to Professor Hamburger of the University of Graz, the pavor nocturnus of children can be cured only by suggestion. It is natural, he said, that his statement refers only to genuine night terror and not to that of febrile children. It is very easy to mistake the frightful awakening and eventually the shrieking of a child on the verge of a febrile disease with a "pavor nocturnus." The causative agent of the latter is always some frightening observation of the child, some "psychic trauma" which occupies the thought of the child and influences its dreams. The child awakening with the signs of fright is still asleep even if he sees and is able to answer questions; at least he is dream-dizzy. Certain periodically repeating manifestations show that always one and the same remembrance is causing the night fright. Dr. Hamburger does not consult with the parents regarding the attendance and treatment of these children. He prescribes some innocent drug and orders the child to take 5 drops at bedtime. He gives the instructions directly to the children, stating very positively that the taking of the medicine insures a quiet night and undisturbed sleep. Hamburger says that the methods hitherto applied and found efficacious, for instance, adenotomy, are good only through suggestion.

Blindness Following Prophylactic Use of Silver Nitrate Solution

The *Budapesti orvosi ujság* (Budapest Medical News) reports a case in which a midwife dropped in the eyes of a new-born babe a 10 per cent. silver nitrate solution instead of the customary and compulsory 1 per cent. solution. The infant cried for two hours incessantly with the eyelids tightly closed. Opening the eyes revealed a gelatinous mass, and a putrefactive process began which ended with the total blindness of the infant in consequence of the perforation of the cornea and prolapse of the iris, despite iridectomy. As a result of this unfortunate occurrence the highest board of sanitation intends to issue a new order prescribing a 1 per cent. solution of silver acetate instead of silver nitrate, the former having the advantage of not being soluble in a higher percentage than 1:100.

Control of Venereal Diseases in Roumania

It is of interest to note that in Roumania the legislature has taken some bold steps with respect to venereal diseases. By an order of the board of sanitation which came into force lately, syphilis, both primary and secondary, and gonorrhea have been made compulsorily notifiable in certain counties of the kingdom. The certificate of notification which is required to be given sets forth the sex, age, occupation and marital condition of the person reported, and the stage of the disease or its duration. The name and address of the person is not disclosed, but he is denoted by a number or other reference in the records of the medical practitioner notifying. In a circular letter addressed to the medical practitioners in Transylvania, the commissioner of public health states that after the publication of the order making venereal diseases notifiable, persons other than a medical practitioner or a person acting under a practitioner's direct instructions are forbidden under heavy penalties to attend or treat any person suffering from venereal disease within the area to which the order applies. With a view to lessening any hardship which might thus occur, it is intended to establish dispensaries in the larger towns for venereal diseases, under state control. In these dispensaries free outpatient treatment can be obtained without unnecessary questions or inquiries. A useful and enlightening pamphlet for public information has been drawn up by the commissioner of public health pointing out the seriousness of the different forms of venereal disease and explaining how free treatment can be obtained.

BERLIN

(From Our Regular Correspondent)

Aug. 4, 1921

New Prussian Regulations with Respect to Disinfection

Whereas former regulations in Prussia and throughout the German empire in regard to the disinfection of sickrooms in connection with infectious diseases were based on the assumption that the disease-producing agents were scattered in all directions by the patients and that they remain viable in apartments for a long time, if a thorough postmorbum disinfection of the dwelling does not destroy them, more recent investigations have shown that disease germs do not remain long viable in room dust, but that the spread of disease bacteria for years after the recovery or death of a patient is due alone to human bacteria carriers. Therefore, the new regulations lay the chief stress on day-by-day disinfection at the bedside, in order to render all eliminations and contaminated utensils innocuous, until repeated bacteriologic investigations furnish evidence that the inciting organisms have disappeared. The danger that lurks in bacteria carriers and spreaders of disease-producing organisms must be met by the detection of such persons, in order that they may be enlightened in regard to the menace that is inherent in their condition and that they may be constrained to observe the necessary cleanliness of person, more particularly with respect to the washing of hands. The Prussian public health administration decided, however, not to give up terminal disinfection entirely, as has been stated by the medical inspector, Dr. Lentz, in an address delivered before the Berlin society for public health culture. But if there has been thorough daily disinfection at the bedside, terminal disinfection may be confined to the fumigation of beds and utensils, and the cleansing and airing of the sickroom. Since the severe epidemic of dysentery in 1916 and 1917, during which, owing to the lack of proper disinfectants and disinfection apparatus, the then existing regulations were not complied with, it has become evident that such rigorous requirements were unnecessary, and the public health administration, two years ago, announced that the terminal disinfection might be dispensed with, provided, in the opinion of the county (*krcis*) physician, the daily disinfection had been properly carried out. The new regulations that have just appeared contain some general instruction in regard to the mode of transmission of various diseases, such as dysentery, typhoid, scarlet fever, tuberculosis, trachoma and cerebrospinal meningitis, and also in regard to measures to be employed to prevent infection. Instructions are also given with respect to the disinfection of vehicles, and other means

of transport; daily disinfection at the bedside, and terminal disinfection (after the recovery or death of the patient or his removal to a hospital, and in the case of tuberculosis, after a change of residence). As means of disinfection, mercuric chlorid, lime and sterilizing by means of boiling water are recommended. But other disinfectants also may be employed. The daily disinfection at the bedside is the duty of the attending nurses, who should have had a week's special training in methods of disinfection. If necessary, visiting nurses or professional disinfectors may instruct the attending nurses or the friends of the patient in regard to the best methods of carrying out daily disinfection, but they must not interfere in any way with the treatment that is being employed. The terminal disinfection should be carried out by the trained person who attended to the daily disinfection, but it is imperative that such person must have had the necessary training for these duties. Only in case the county (*kreis*) physician thinks that a special disinfection is necessary shall such disinfection be carried out, but it must be done immediately after the recovery or death of the patient. The police authorities must furnish the needed disinfectants. It is desirable that everywhere such expense shall be borne by the commune or city. During the course of the discussion it was brought out that, in the past, final disinfection in Berlin was often carried out very tardily—sometimes weeks or even months after the death or the recovery of the patient, which may be ascribed to defects in the system of reporting cases. In the case of diphtheria a more efficient method has been in vogue for the year last past, as the provision for the diphtheria welfare nurses has made this possible. But in two thirds of the cases the old method of disinfection has proved to be necessary, as the apartments were in such an insanitary condition.

Institute for Clinical Pharmacologic Research

Owing to the exertions of Professor Brauer, under the name of "Forschungsinstitut für klinische Pharmakologie," a scientific institute has been created at the Eppendorf Hospital in Hamburg. The purpose of the institute, as set forth by Brauer in No. 16 of the *Deutsche medizinische Wochenschrift*, is to establish close connections between pharmacologic investigation and the practical treatment of patients. In other words, the institute will deal with questions of applied pharmacology. The many valuable results of pharmacologic investigation are to be brought into more systematic connection with the practical work done at the bedside, and, on the other hand, the clinical observations made in the course of the practical medical treatment of patients are to be clarified and given a more solid scientific foundation by means of experimental pharmacology. The pharmacologist studies the effect of remedies mainly through experimentation with healthy animals or on a single organ. It is, however, an established fact that medicaments when introduced into a healthy organism exert a different effect than they would on a person in a pathologic condition; and especially is it true that the effect on the healthy animal organism is very often essentially different from the effect on the patient. Pharmacologic investigation must, therefore, be supplemented by clinical observations. For this purpose a full-time pharmacologist will be employed at the new institute. He will observe and study in detail the therapeutic action of drugs on patients, and will assist the clinician with his counsel by drawing the necessary conclusions from the theoretic standpoint. The clinician remains responsible for the treatment of the patients and for the clinical observations. The institute will have at its disposal a complete collection of drugs arranged in accordance with scientific principles; also a supply of all remedies that have a scientific basis for their existence.

Marriages

CHRISTO P. BALABANOFF, Tacoma, Wash., to Mrs. Alice M. Byam of Montreal, in Vancouver, B. C., in July.

JOHN RAYMOND THRASHER, Indianapolis, to Miss Winnifred Natalie Siever, at Irvington, Ind., in July.

EDWIN CLEVELAND YODER, Denison, Iowa, to Miss Leona McLean of University Place, Neb., recently.

EDWARD C. BROOKS, Iowa City, to Miss Edna H. Crowe of Des Moines, Iowa, at Chicago, in July.

RAY C. JONES, Brandon, Manit., to Miss Hazel Agnes Richardson of Winnipeg, in August.

VERNE PHEEM MASON, Baltimore, to Miss Lucy Meredith Ginn, at Millwood, Va., August 17.

HOWARD FRANK STEELE, Claypool, Ind., to Miss Gertrude Ethel Jayne, at Claypool, in July.

FREDERICK H. DUBBE, New Ulm, Minn., to Miss Lillian Steinke of Minneapolis, in July.

HENRY E. FLANSBURG to Miss Mary Helen Allensworth, both of Lincoln, Neb., July 20.

ALFRED J. HELTON, Yakima, Wash., to Miss Olive M. Harris of Kansas City, Mo., in July.

KENNETH C. PEACOCK to Miss Bernita Whitehead, both of Sioux City, Iowa, recently.

JOSEPH J. REILLY, Denver, to Miss Teresa Gertrude Cannon of Cresco, Iowa, August 6.

ARCHIBALD LEIGH DEAN, JR., New York, to Miss Ella Cecile Lang of Boston, August 9.

EDWIN H. VAN PATTEN to Miss Helen Edminston, both of Dayton, Ohio, recently.

SYLVESTER C. KEHL to Miss Carolyn L. D'Autrey, both of Chicago, August 10.

WILLIAM M. CRAIG to Miss Ella Branson, both of Petersburg, Ill., August 4.

CHARLES E. PRIOR to Miss Alice A. Brady, both of Malden, Mass., August 6.

CHARLES A. KATHERMAN, Sioux City, to Miss Geraldine Visser, recently.

CLAUDE E. PETTIBONE, Crown Point, Ind., to Miss Helen Hixon, June 18.

FRANK WHITMORE to Miss Louise Bishop, both of St. Paul, recently.

FRANK SECOY to Miss Ethel Henry, both of Sioux City, Iowa, recently.

C. L. RUDESIL to Miss Florence E. Harry, both of Indianapolis, July 2.

Deaths

Joseph E. Ingoldsby, Boston; Medical School of Harvard University, Boston, 1898; member of the Massachusetts Medical Association; served during the late war as examining physician for local exemption board division 19; died, August 8, as the result of a nervous breakdown, suffered three years ago, aged 48.

Ebeneser Alden Dyer, Whitman, Mass.; Bellevue Hospital Medical College, New York, 1882; member of the Massachusetts Medical Association; member of the state legislature, 1906, and since then has served on the local board of health and the school committee; died, August 5, after a long illness, aged 64.

Joseph Alphonse Lorrain, Montreal, Canada; Montreal School of Medicine and Surgery, 1896; served during the World War in France as officer in charge of the radiological service of the Laval Medical Unit, since then as chief of the radiologic clinic at the Bruchesi Institute; died, July 26, aged 48.

⊕ Indicates "Fellow" of the American Medical Association.

Justin Lowe Jackson, Savannah, Ga.; Atlanta College of Physicians and Surgeons, 1903; at one time president of the Georgia Medical Society; specialized in ophthalmology, otology, laryngology and rhinology; died, August 11, at a local hospital, from typhoid fever, aged 46.

Walter L. Chase, New Bedford, Mass.; University of Vermont, 1903; Medical School of Harvard University; formerly on staff of Boston City Hospital, and later ophthalmologist at St. Luke's Hospital, Bedford, where he died suddenly, August 8, from angina pectoris, aged 52.

Thomas Hughes Meighen, Wheeling, W. Va.; Hospital College of Medicine, Central University of Kentucky, Louisville, 1892; member of the West Virginia State Medical Association; served as captain in the late war; died, August 9, at Littleton, W. Va., aged 56.

Elmer Ellsworth Barrett ✠ Glencoe, Minn.; Dartmouth Medical College, Hanover, 1887; founder of the McLeod County Hospital, Glencoe, in 1906; died suddenly, August 9, at the home of his brother-in-law, near Ipswich, S. D., from chronic nephritis, aged 58.

Alexander Mitchell Loewenstein, Cleveland; Albany Medical College, 1908; member of the Medical Society of the State of New York; during the late war served as captain in the sanitary corps in Russia, of epidemic encephalitis; died, August 10, aged 36.

Henry A. Henriques ✠ Morristown, N. J.; College of Physicians and Surgeons, New York, 1883; president of the Shonghum Sanatorium; member of the staff of the Memorial Hospital; died suddenly, August 19, from heart disease, aged 60.

John H. Baird, Sr., Mars Hills, N. C. (license, North Carolina, 1885); member of the Medical Society of the State of North Carolina; assistant surgeon in the Confederate Army; practitioner for sixty years; died, August 16, aged 77.

Henry W. Mindel, Philadelphia; Jefferson Medical College, Philadelphia, 1873; practitioner for nearly half a century; died, August 14, in Wildwood, N. J., while on the way to the station to be taken to a Philadelphia hospital, aged 69.

Edgar Joseph Howland, Goldfield, Nev.; Tufts College Medical School, Boston, 1897; member of the Nevada State Medical Association; specialized in ophthalmology, otology, laryngology and rhinology; died in August, aged 61.

James V. Woofter, Centralia, Va.; Chicago College of Medicine and Surgery, 1906; Spanish-American veteran; during the late war served as first lieutenant, discharged, Jan. 28, 1919; died, July 20, aged 45.

George R. Rowland ✠ Covington, Ind.; University of Michigan, Ann Arbor, 1865; Medical College of Ohio, Cincinnati, 1866; specialized in dermatology; died, August 10, from arteriosclerosis, aged 81.

Melancthon S. Ayers, Teaneck, N. J.; Long Island College Hospital, Brooklyn, 1871; member of the state legislature, 1903-1904; practitioner for nearly half a century; died, August 15, aged 74.

Henry Veazie, New Orleans; Tulane University of Louisiana, New Orleans, 1876; formerly on the staff of the Charity Hospital; died, August 11, at the Touro Infirmary, New Orleans, aged 66.

Clinton H. Coy, Napoleon, Ohio; College of Physicians and Surgeons, Baltimore, 1888; member of the Ohio State Medical Association; died, August 9, after illness of three months, aged 66.

Philip Y. Eisenberg ✠ Norristown, Pa.; University of Pennsylvania, 1873; Civil War veteran; practitioner for fifty years in Norristown; died in August, after a long illness, aged 74.

James Willis J. Marion ✠ Calais, Me.; Medical School of Harvard University, Boston, 1908; was drowned while bathing in the Mascoma Lake, at Enfield, N. H., August 10, aged 40.

William H. Oviatt, Lakewood, Ohio; University of Buffalo, 1869; surgeon in the Civil War; was struck by an automobile, suffering a fractured skull, and died, August 2, in Cleveland, aged 87.

George Stedman ✠ Boston; Medical School of Harvard University, Boston, 1875; associate medical examiner for Suffolk County, 1890-1910; died, August 16, from cancer, aged 71.

Robert T. French ✠ Rochester, N. Y.; University of Buffalo, 1888; member of the Rochester Academy of Medicine; died suddenly, August 18, from heart disease, aged 57.

George J. Zuebelen, Dayton, Ohio (license, Ohio, 1896); practitioner for over sixty years; died, August 8, at St. Elizabeth's Hospital, from bronchopneumonia, aged 84.

Herman Lee Poff, Ferrum, Va.; Medical College of Virginia, Richmond, 1912; was shot and killed, August 6, by a merchant of the town, in his own home, aged 34.

Robert B. Patrick ✠ Waycross, Ga.; University of Maryland, Baltimore, 1912; died, August 8, in a local hospital, following an operation for appendicitis, aged 35.

Howard Wheelwright Kline, Richmond, Va.; Medical College of Virginia, Richmond, 1920; died, August 14, in the Johnson-Willis Sanatorium, Richmond, aged 44.

Edwin A. Hambright, Philadelphia; Philadelphia College of Pharmacy, 1866; Hahnemann Medical College, Philadelphia, 1874; died, August 9, aged 75.

William B. Kinniston ✠ Exeter, N. H.; Medical School of Maine (Bowdoin College), 1895; died, August 18, from heart disease, at Skowhegan, Me., aged 51.

Frederick McCormick, Monroe, La.; Tulane University, New Orleans, 1869; Confederate veteran; died, August 4, at the home of his daughter, aged 83.

Joseph A. Lagace, Montreal, Canada; University of Vermont, Burlington, 1887; practiced in Nashua, N. H., until recently; died in August, aged 61.

Thomas H. Leidy, Reading, Pa.; Jefferson Medical College, Philadelphia, 1869; Confederate veteran; died, August 14, from liver complications, aged 76.

M. R. Waggoner, Sr., DeWitt, La.; Hahnemann Medical College and Hospital of Chicago, 1871; died, August 12, from angina pectoris, aged 83.

Nellis Clement Satterlee, Williamsfield, Ohio; University of the City of New York, 1887; died, May 15, from carcinoma of the liver, aged 50.

Daniel W. Harner, New Holland, Pa.; Homeopathic Hospital College, Cleveland, 1878; died, August 14, in Atlantic City, N. J., aged 66.

Mary Ellis Morrison, Washington, D. C.; Howard University, Washington, 1886; died, June 25, at Newport News, Va., aged 68.

James W. McKibbin, Adams, Neb.; Northwestern University Medical School, Chicago, 1878; died suddenly, August 10, aged 69.

Fulton Monroe Lothridge, Toccoa, Ga.; University of Georgia, Augusta, 1893; died suddenly in his office, August 5, aged 52.

Edwin G. Renner, Monroe, S. D.; Chicago Homeopathic Medical College, 1895; died, July 31, from cocain poisoning, aged 48.

James Fussell, Fitzgerald, Ga.; University of Georgia, Augusta, 1894; died, August 17, at a local sanatorium, aged 54.

Frederick D. Vanderhoof ✠ Phelps, N. Y.; College of Physicians and Surgeons, New York, 1864; died, July 29, aged 78.

William E. Walker, Greer, S. C.; University of Tennessee, Memphis, 1881; died, August 14, after a long illness, aged 69.

Charles R. Wilson, Louisville, Ky.; Louisville Medical College, 1875; died, July 17, from cerebral hemorrhage, aged 69.

William Montgomery, Newbern, Tenn.; Eclectic Medical Institute, Cincinnati, 1882; died, July 8, after a long illness.

Frederick Norman Swift, West Chazy, N. Y.; Long Island College Hospital, Brooklyn, 1896; died, August 10.

Josephus Williams, Hood River, Ore.; University of Nebraska, Omaha, 1883; died recently, aged 74.

Sidney J. Gano, Dallas, Texas; University of Pennsylvania, Philadelphia, 1891; died on July 14.

Horace P. Haddock, Baltimore; Atlantic Medical College, Baltimore, 1908; died, August 6.

William F. Ross, Booneville, Ark. (license, Arkansas, 1903); died, August 10, aged 60.

Mary Elizabeth Shipp, Salt Lake City (license, Utah, 1894); died, July 23, aged 68.

V. 7
1921

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"BASIC CANCER RESEARCH" AND "COSMOPOLITAN CANCER RESEARCH SOCIETY"

Medical journals, and some other technical publications, have received recently what purport to be items of news value sent out by the "Medical News Bureau," 77 Seventh Ave., Brooklyn, New York. The "manager" of this alleged bureau is given as D. E. Woolley. These "news items" are undated but are marked: "(For immediate release.)" One of these starts with the statement, attributed to Mme. Curie, that cancer can be cured by radium and then continues:

"Cancer can be cured by the use of selenium and tellurium, more plentiful and less costly elements," says F. W. Humphreys of Brooklyn, an American born student of chemistry and science who has devoted years to the study of the cause of cancer and the discovery of methods for relief. . . ."

"For the purpose of further developing methods of control and treatment of disease by the use of selenium and tellurium discovered by a number of local scientists, chemists and physicians, the Basic Cancer Research has been organized and an efficient laboratory established at 847 Union Street, Brooklyn. . . ."

"Through the education of the people and special instruction to physicians, it is hoped it may soon be possible to gain control of and eradicate the disease which now appears so great a menace. Mr. F. W. Humphreys one of the organizers of the new institution estimates that within ten years, or perhaps less time, cancer will no longer be considered a fatal disease."

Evidently the joker here is the "Basic Cancer Research" of 847 Union Street, Brooklyn!

Newspapers are approached from a different angle. They receive free publicity matter on stationery reading "Cosmopolitan Cancer Research Society" (D. E. Woolley, secretary), 847 Union St., Brooklyn, N. Y. With this matter is a letter from Woolley addressed to the editor of the paper to which the stuff is sent and asking:

"In the interest of suffering humanity will you please give space to the enclosed?

"No object of greater importance has ever been presented for your helpful consideration. Thousands are dying whom you can help save."

According to the "news item" that accompanies this letter the "Cosmopolitan Cancer Research Society" has been founded for the purpose of "investigating and developing methods" by which cancer "may be successfully combated and eventually eradicated." It states further that the "society" will "disseminate information concerning symptoms, diagnosis, treatment and methods of prevention" of cancer. Furthermore, the membership of the society "includes physicians, scientists and chemists of prominence, laymen of means, and the sympathetically inclined from all walks of life." Nor is this all!

"Doctor Frederic Klein the eminent authority on urinology and the chemistry of cancer, has evolved a new colormetric test which is a most wonderful and valuable discovery in the diagnosis of cancer and various other diseases. This test will be particularly valuable in all life extension work because it determines, even in children the possibility of predisposition toward any particular disease, whether tuberculosis, cancer, diabetes or any of the diseases which in later life may become fatal. It determines also the vitality of the subject enabling the physician to accurately determine the condition of any of the vital organs."

We learn in closing that memberships in the "society" are "graduated from $1.00 upwards according to the ability and disposition of those who may be interested."

Located at 77 Seventh Avenue, from which the press-agent material of the "Medical News Bureau" is sent, is the "Basic Chemical Corporation of America." According to such information as we have been able to get, the president of this concern is F. W. Humphreys, the "student of chemistry and science who has devoted years to the study of the cause of cancer and the discovery of methods of relief." We are informed that Mr. Humphreys was for a while in the employ of a "chemical company" of Philadelphia, and has been in the photographic line down in Virginia and later was connected with a real estate concern in Brooklyn. Another officer of the Basic Chemical Corporation is said to have been in the grocery line in a small village in Missouri, selling out and later coming to Brooklyn and entering the insurance business. Still another officer, it seems, was in the fish business. In addition to these three officers, there are two directors, one of whom is in the fancy grocery line, and the other is a local practicing physician whose name we find in the Propaganda department's testimonial file under Sanmetto and Arsenauro.

The Dr. Frederick Klein, who is described as the "eminent authority on urinology and the chemistry of cancer," is not a physician but claims a Ph.D. from Munich, Bavaria. Klein claims to have developed certain urinary tests. One of these, according to him, "indicates the body *Vitality* with great accuracy," another proves the presence of cancer, a third is the "syphilis test" and a fourth is the "pregnancy test." And these are not all!

Those who read the reports of the Council on Pharmacy and Chemistry may remember that Frederick Klein is the gentleman who made "Sulfo-Selene," which the Council, in refusing it recognition, described as a "mixture containing a selenium compound of undetermined composition produced by reduction of nitro-selenous acid with sulphurous acid, mixed with bile salts and diluents." Sulfo-Selene was widely exploited in the newspapers in 1916 as a remedy for cancer, and Klein got a good deal of publicity at that time.

Just what product the Basic Chemical Corporation of America is putting, or is about to put, on the market we do not know. From the rather vague talk about selenium and Frederick Klein's marvelous diagnostic discoveries, it might be inferred that "Sulfo-Selene" was to be resurrected. Be that as it may, it seems fairly obvious that the material being sent out by D. E. Woolley—whether as "Manager" of the "Medical News Bureau" or as "Secretary" of the "Cosmopolitan Cancer Research Society"—is advertising matter in the guise of news.

In this connection it is worth noting that the American Newspaper Publishers' Association, in a special bulletin issued in 1909, published a very complete list of press-agents and the interests these agents represented. This list contains the name D. E. Woolley, who then was sending out press notices for the National Association of Piano Dealers of America. Is this the gentleman who is now acting as press-agent for the Basic Chemical Corporation of America? If it is, it may be that the slump in the piano trade has caused Mr. Woolley to turn from musical instruments to cancer cures.

Correspondence

PYRETHRUM

To the Editor:—For some time, probably six months or a year, the reading of THE JOURNAL has been made a sporting proposition from the presence of ants. They are attracted by the glue. For several years, beginning with the protection and conservation of food during the war, ants began seeking strange and unusual substances, such as electricity in light sockets and telephones, which killed them by the thousands and incidentally put the lights and telephones out of commission, and finally they committed the unpardonable by making the reading of THE JOURNAL a swatting campaign: for their bite is quite painful. The remedy was found in placing here and there through the leaves a small quantity of pyrethrum.

In this climate, where ants are on the job in all seasons, it is a godsend to spread a thin layer on a shelf and render any kind of food placed there immune for an indefinite period. One dusting is good for a year and probably longer. Its use as a mosquitocide (culicide, I should say) about residences has long been known, but I doubt whether its effect in the open on large and powerful ones bred in brackish water (the New Jersey variety) is sufficiently understood. I had a good illustration of this recently: I went fishing among the Florida keys provided with everything for the chowder except the fish. There were potatoes, onions, tomato paste, salt pork, and everything except his honor the

jewfish. We went into an atoll, anchored alongside the mangroves, and beneath us plainly visible in the pellucid water 20 feet deep were fish of all kinds, and even our special quest, the jewfish, sticking his head out from under a rocky ledge. And then the mosquitoes came by the thousands and it looked as if we should have to beat it at once and go without the pièce de résistance (some of them weigh from 100 to 200 pounds, and resist is right). However, before making a retreat, I decided to try the fumes of pyrethrum, although I had little faith in its effect on *Aedes sollicitans*. But it worked. In five minutes the boat was free of every single mosquito, and by keeping a smudge going, we were able to catch all the fish we wanted, cook the chowder, and eat it under the awning on the open deck. It was four bells (2 p. m.) when we sat down to the delectable repast, and by six bells every one of the eight good and true trenchermen showed signs of extreme repletion. Of the aforesaid eight one did not smoke, and I noticed that no two of the seven smoked the same brand, which shows how free this country is.

Pyrethrum botanically belongs to the order of the *Compositae*, and all the plants in this order mentioned in the U. S. Dispensatory (and only those) are vermifuges. From seeing a child who had eaten some pyrethrum powder promptly and safely expel a number of lumbricoid worms, I have an idea that in pyrethrum santonin has a rival which it might be well and profitable for some laboratory to prove. The war caused the price of insect powder to quadruple because a large amount of it is grown along the Adriatic in Dalmatia and Herzegovina, and this supply was cut off. Several years ago, natives of these districts moved to Stockton, Calif., and cultivated buhach in that locality on a large scale. Insect powder, if burned in an hermetically sealed room, will eventually kill mosquitoes. Burned in an open room or an ordinarily closed one, it causes intoxication, falling to the floor, and movements of the limbs like strychnin poisoning; but the mosquitoes will recover when the fumes give out. In Havana, during the mosquito extermination campaign, this was so well understood that paper was placed on the floor, and the insects that had fallen were burned with the paper after the rooms were opened. It was the practice there, when a case of yellow fever occurred in a block, to burn pyrethrum in every house in the block. This necessitated powder in enormous quantity, a shipload, three mosquito brigades to operate in different sections (Regla, Jesus Del Monte, Guanabacoa), false screens (biombos), paper and flour paste, to seal up more or less the al fresco houses.

GEORGE R. PLUMMER, M.D., Key West, Fla.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

REPORT ON VITAMINS

To the Editor:—The most interesting and instructive reading I have enjoyed in the past few years has been your editorials. . . . It is refreshing to read your articles on food. Please inform me where I can get the report of "Lister Institute and Medical Research Committee on Food Factors."

W. EHRHARDT, M.D., Westfield, Texas.

To the Editor:—In a recent issue of THE JOURNAL I note a reference to a report published by a committee appointed jointly by the Lister Institute and the Medical Research Committee which details briefly "The Present State of Knowledge Concerning Accessory Food Factors (Vitamins)." I am especially interested in this report and should appreciate your telling me as to where it can be obtained and also as to the cost.

BLANCHE COOPER, B.S., Logan, Utah.
Associate in Human Nutrition, Utah Agricultural College.

ANSWER.—The "Report on the Present State of Knowledge Concerning Accessory Food Factors (Vitamins)" is Special Report No. 28, issued by the Medical Research Committee. It can be purchased direct from H. M. Stationery Office, Imperial House, Kingsway, London, W. C. 2, England. The price is four shillings, which at the present rate of exchange is equivalent to about 75 cents in U. S. currency.

FAMILIAL ACIDOSIS

To the Editor:—I am presenting a brief history of a familial type of acidosis in childhood, of a fatal type, and asking for help, hoping to avert a fatality to a recently born baby.

The family history offers nothing significant. The mother has had seven children, four of whom have died from the same disease. Erwin, the oldest living child and the first born, is sturdy and normal. He was breast fed. Erna was breast fed and lived seven months and four days. Ernst was breast fed and lived seven months and twenty-two days. Clarence was breast fed for three months and then was given malt soup. He is living and is now 6 years old. Arnold was breast fed and died at the age of 7 months and 28 days. Laura was breast fed for six weeks and then fed milk and dextrin maltose. She lived eight months. Laurine is now 3 months old and weighs 14 pounds. She seems normal in every way. She still takes the breast.

The children were all healthy in appearance and of normal or slightly above normal weight. The acidosis appeared around dentition time and was of a fulminating type; the important symptoms were drowsiness, vomiting, increased pulmonary ventilation and coma. The children lived about two days. Each of these was seen by a different pediatrician. Blood transfusion was tried in one case. All had large doses of soda by proctoclysis and intravenously.

I am seeking advice as to the proper procedure in the 3 months old baby. The mother's milk shows fat and proteins, each 2 per cent., and sugar, 7 per cent. Would routine urine analysis to determine the ammonia output be of help?

HENRY F. LANGHORST, M.D., Elmhurst, Ill.

ANSWER.—The so-called cases of familial acidosis in childhood have been occasionally observed and have been noted in the literature. The children so affected are usually large, well developed and have been breast fed. The attack occurs somewhat late in the period of lactation, from the sixth month on. The little patients usually become fat and flabby and develop the attack of acidosis suddenly, which is characterized by rapid superficial breathing, rapid pulse, drowsiness deepening into coma, and constipation. As a rule a paralytic ileus with complete obstruction takes place; the liver is enlarged and the course of the disease is rapid, death ensuing, as a rule, in from three to five days. On necropsy these cases show fatty changes in many of the organs. The liver sometimes shows extreme fatty degeneration resembling phosphorus poisoning or acute yellow atrophy. The kidney, heart muscle, the skeletal muscles and the vascular walls all show fatty changes.

In analyzing this group of cases, the outstanding facts are that they occur in large, breast-fed children, and that the attack comes on during the middle or toward the close of the lactation period. An explanation for the occurrence of this condition may be suggested. The infants who are strong, vigorous, and who are being fed on breast milk find that the nutriment contained in the maternal food is no longer able to provide for the needs of the growing body. At this time the infant begins to draw on his reserve supply of food; and, when this is exhausted, he proceeds to consume the tissues of his own body. It is assumed that this process of burning his own tissues is capable of producing the clinical results which are observed. If this assumption is correct, it is evident that mixed feeding should be begun early, although it is not necessary, indeed, not desirable to wean the baby entirely.

He should be given sugar solutions, malt soup, orange juice, and other forms of carbohydrates as early as the third month. The fourth or fifth month he should be given cooked cereals in conjunction with the breast feeding, and at the sixth or seventh month he may have animal broths with vegetables boiled in them, or baked potato and, if the condition of the bowels permits, apple sauce.

In a word, the principle of treating these babies is to begin mixed feeding early. Carbohydrate foods should be stressed, and the baby should have a sufficient amount of food. The analysis of the breast milk would not ordinarily throw any light on the solution on the problem. It is doubtful whether the estimation of the ammonia output in the urine would be of any scientific or therapeutic aid in these cases.

Gonorrhea in Women.—The diagnosis of gonorrhea in women is difficult. Success in treatment requires hospital care, and only in the very early stages is there much hope for complete cure. When the disease has passed into the chronic stage it is difficult to treat and cure is rarely accomplished except after destructive operations or the climacteric.—A. J. Casselman, *Public Health Rep.* **36**:857 (April 22) 1921.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Juneau, Sept. 6. Sec., Dr. Harry C. De Vighne, Juneau.

ARIZONA: Phoenix, Oct. 4-5. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 17. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Oct. 4. Sec. Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 11. Sec., Dr. Edgar P. Copeland, 1315 Rhode Island Ave., Washington.

GEORGIA: Atlanta, Oct. 11-13. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Oct. 9. Sec., Dr. G. C. Milnor, 401 S. Beretania St., Honolulu.

IDAHO: Boise, Oct. 4. Director, Mr. Paul Davis, Boise.

KANSAS: Topeka, Oct. 11. Sec., Dr. Albert S. Ross, Sabetha.

MASSACHUSETTS: Boston, Sept. 13-15. Sec., Dr. Walter P. Bowers, 144 State House, Boston.

MICHIGAN: Lansing, Oct. 11. Sec., Dr. Beverly D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 4-6. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, Oct. 4. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW HAMPSHIRE: Concord, Sept. 9-10. Sec., Dr. Charles Duncan, Concord.

NEW JERSEY: Trenton, Oct. 18-19. Sec., Dr. Alexander MacAlister, State House, Trenton.

NEW MEXICO: Santa Fe, Oct. 10-11. Sec., Dr. R. E. McBride, Las Cruces.

NEW YORK: Albany, Buffalo, New York City and Syracuse, Sept. 26-29. Mr. Herbert J. Hamilton, Asst. Professional Examinations, Education Bldg., Albany.

OKLAHOMA: Oklahoma City, Oct. 11-12. Sec., Dr. J. M. Byrum, Shawnee.

PORTO RICO: San Juan, Oct. 4. Sec., Dr. M. Quevedo Baez, Box 804, San Juan.

RHODE ISLAND: Providence, Oct. 6-7. Sec., Dr. B. U. Richards, State House, Providence.

WEST VIRGINIA: Charleston, Oct. 11. Sec., Dr. W. T. Henshaw, Charleston.

WYOMING: Cheyenne, Oct. 3-5. Sec., Dr. J. D. Shingle, Cheyenne.

Oklahoma April Examination

Dr. J. M. Byrum, secretary, Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 12-13, 1921. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. Thirty candidates, including 1 osteopath, received physician's and surgeon's license by reciprocity, and 1 candidate received an osteopath license by reciprocity. One candidate received a reregistration license. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1914)	84
Kansas City Medical College		(1901)	*
University of Toronto		(1909)	84

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Atlanta School of Medicine		(1908)	Georgia
Georgia College of Eclectic Med. and Surg.		(1911), (1913)	Georgia
Medical College of Indiana		(1879)	Indiana
University of Kansas School of Medicine			Kansas
Kentucky School of Medicine		(1903)	Florida
Univ. of Louisville Med. Dept.		(1915)	Kentucky, (1916) Alabama
Tulane University		(1916)	California
American Medical College		(1906)	Texas
Kansas City Medical College		(1904)	Kansas
Missouri Medical College		(1885)	Texas
St. Louis College of Physicians and Surgeons (1919, 2) Tennessee		(1917)	Missouri
Washington University		(1902)	Missouri
Memphis Hospital Medical College (1909) Texas		(1908), (1911)	Tennessee
University of Tennessee		(1917)	Arkansas, Tennessee
Vanderbilt University		(1912)	Kentucky, (1916, 3) Tennessee
Dallas Medical College		(1903)	Arkansas
University of Texas		(1918)	Texas
Medical College of Virginia		(1915)	Virginia
Osteopath			Kansas, Missouri

* No grade given.

Massachusetts May Examination

Dr. Walter P. Bowers, secretary, Massachusetts Board of Registration in Medicine, reports the oral, written and practical examination, held at Boston, May 10-12, 1921. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 27 candidates examined, 7 passed and 20 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
American Medical Missionary College		(1902)	75
College of Physicians and Surgeons, Boston		(1908)	75.1
Middlesex College of Medicine and Surgery		(1920)	78
Tufts College Medical School		(1920)	75
Fordham University		(1917)	80
Woman's Medical College of Pennsylvania		(1911)	78
School of Medicine and Surgery, Lisbon		(1915)*	75

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles		(1920)	63.2
Kentucky School of Medicine		(1906)	24.8
Baltimore Medical College		(1902)	69.7
University of Maryland		(1919)	72.7
College of Physicians and Surgeons, Boston (1920) 64.7, (1921) 68.2		(1919)	66.8,
Middlesex College of Medicine and Surgery (1920) 66, 69.3, 70.5, 71, 71.1, 73		(1918)	61.6,
Tufts College Medical School		(1920)	67.5
Laval University		(1920)	64.3
University of St. Vladimira		(1904)*	62.2
Osteopaths		63.4, 64.2, 67.9	

* Graduation not verified.

Minnesota June Examination

Dr. Thomas S. McDavitt, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 7-10, 1921. The examination covered 15 subjects and included 80 questions. An average of 75 per cent. was required to pass. Fifty-five candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1914)	87.8
College of Physicians and Surgeons, Chicago		(1902)	78.1
State University of Iowa College of Medicine		(1921)	89.3
Johns Hopkins University		(1916)	84
Harvard University		(1918)	90.4
University of Minnesota Medical School (1921)* 84.9, 85.5, 85.8, 85.8, 86, 86.7, 87, 87, 87.1, 87.2, 87.3, 87.4, 87.7, 88.1, 88.2, 88.2, 88.4, 88.5, 88.6, 88.9, 89, 89, 89, 89.2, 89.3, 89.4, 89.6, 89.8, 89.9, 90, 90.5, 90.6, 90.9, 90.9, 90.9, 91.1, 91.1, 91.2, 91.4, 91.4, 91.7, 92, 92, 92.5, 93.2		(1917)	88.1,
Columbia University		(1909)	89.3
University of Vermont		(1918)	89.3
University of Dublin		(1918)	94.4
University of Lausanne		(1920)	92

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1901)	North Dakota, (1903) Illinois
University of Illinois		(1916), (1920)	Illinois
State University of Iowa Coll. of Med.		(1918), (1920)	Iowa
Bowdoin Medical School		(1919)	Maine

* These candidates have finished the medical course and received their M.B. degrees, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

Colorado July Examination

Dr. David A. Strickler, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 5, 1921. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 21 candidates who took the physician's and surgeon's examination, 19, including 2 osteopaths, passed and 2 failed. Thirteen candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1917)	83.3
University of Colorado 82.6, 83.1, 85.4, 87, 87.2, 88.		(1921) 75, 75.5, 77.2, 79.2, 80.2, 82.3,	
Kansas City University of Physicians and Surgeons		(1921)	89.1
St. Louis College of Physicians and Surgeons		(1921) 75.1,	76, 83
Osteopaths			81.8, 88.2

College	FAILED	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons		(1921)*	
Eclectic Medical College, Cincinnati		(1908)*	

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1910)	Alabama
Atlanta College of Physicians and Surgeons		(1908)	Alabama
Northwestern University		(1909)	Kansas
University of Illinois		(1913)	Illinois
Indiana Medical College		(1906)	Indiana
Keokuk Medical College		(1901)	Iowa
Tulane University		(1916)	Alabama
Johns Hopkins University		(1919)	Maryland
University Medical College of Kansas City		(1901), (1912)	Missouri
University of Pennsylvania		(1908)	Kansas
Jefferson Medical College		(1908)	Penna.
University of Texas		(1911)	Texas

* No grade given.

Book Notices

MEDICAL EDUCATION IN EARLY NEW YORK: TWO DISCOURSES DEALING WITH MEDICAL EDUCATION IN EARLY NEW YORK. By Samuel Bard, M.D., Professor of the Practice of Medicine in King's College. I: A Discourse upon the Duties of a Physician, with Some Sentiments on the Usefulness and Necessity of a Public Hospital: Delivered Before the President and Governors of King's College, at the Commencement, held on the 16th of May, 1769. As Advice to those Gentlemen who then received the First Medical Degrees conferred by that University. II: Discourse on Medical Education, Delivered at the Medical Commencement of the College of Physicians and Surgeons of the University of the State of New York, on the Sixth of April, 1819. Boards. Price, $1 net. With 1 illustration. New York: Columbia University Press, 1921.

The Columbia University Press has very appropriately issued this book at a time when the medical school is about to take a long step forward in the better organization of medical education and research. The addresses are reprinted in facsimile, duplicating the style and type used in the first printing. They reveal Dr. Bard as a true leader in medical science. Particularly to be commended is the following:

> Let your Prescriptions be simple, and as neat and agreeable as the Nature of the Remedy will permit—Nothing can be more absurd than the Farrago of some, nothing more disgustful than the Slovenliness of others; for it is impossible to learn the true Virtues of Medicines, from compound Prescriptions; and Inelegance frequently disappoints us of their Effects.

As indicating his advanced point of view in medical science, we quote the following from the lecture in 1819:

> The great error in our system of education is, that we are too much in a hurry, and that our young men are ushered into the world, and commence the practice of their professions, at a period so early, and after a preparation so slight, that very few have acquired the prudence or the knowledge requisite to govern their conduct in either; and hence arise the errors and failure of too many, and our general, and I am afraid I may say, too just, reputation for superficial attainments.

The lecture is a plea for hospital instruction, for bedside training, for fundamental preparation—in fact for all of those advancements in medical education which we have just begun to achieve today. It is interesting to find that a physician with a clear vision of the future enunciated these principles a century ago. It is instructive to see how modern is his way of handling medical questions that we sometimes flatter ourselves we alone fully understand. And it is particularly humbling to our pride to note how at this early date he clearly sets forth the usefulness in medical education of the public hospital.

MEDICAL ELECTRICITY, ROENTGEN RAYS AND RADIUM, WITH A PRACTICAL CHAPTER ON PHOTOTHERAPY. By Sinclair Tousey, A.M., M.D., Consulting Physician to St. Bartholomew's Clinic, New York City. Third edition. Cloth. Price, $10 net. Pp. 1337, with 876 illustrations. Philadelphia: W. B. Saunders Company, 1921.

In a commendable manner Dr. Tousey keeps his encyclopedic discussion of these subjects thoroughly up to date. He has followed the literature closely, and lists all of the newer devices and apparatus used in this work. Special attention is called to the tables showing the correct exposure for roentgenograms of every portion of the body at various weights and measurements. New sections have also been added dealing with the use of electricity and roentgen ray in the treatment of war injuries. The comprehensive character of this book makes it an invaluable reference work for those utilizing electrical methods in medical practice.

TRAUMATIC SURGERY. By John J. Moorhead, B.S., M.D., F.A.C.S., Professor of Surgery and Director, Department of Traumatic Surgery, New York Post-Graduate Medical School and Hospital. Second edition. Cloth. Price, $9 net. Pp. 864, with 619 illustrations. Philadelphia: W. B. Saunders Company, 1921.

The author includes in this volume the large part of general surgery caused or modified by trauma. The book is well balanced, the greater space being given to such subjects as fractures, dislocations and injuries to special parts of the body. He gives a more detailed discussion of wounds and other traumatic conditions than is found in the usual general surgery. Fractures and dislocations are given their rightful prominence, and a satisfactory method of treatment is advocated in each type of injury. Brief mention is made of complications of injuries, surgical shock and bone diseases. Consideration is given the treatment of a group of minor industrial accidents, various types of burns, heat stroke, caisson disease, gas poisoning, smoke inhalation and others. The traumatic neuroses are quite fully discussed, particularly in their relation to industrial compensation. There is a chapter on the medicolegal phase of industrial accidents, which is becoming daily more necessary for every physician to appreciate. Traumatic surgery is well brought forward as a branch of general surgery, the author viewing it in the future as a definite specialty. As in all specialties, the various conditions in each specialty overlap. The reader infers that reconstructive surgery is considered as a part of traumatic surgery, although the author considers it very briefly. However, many pages are unnecessarily devoted to illustrations on arthroplasty since the subject itself is barely mentioned. The illustrations are numerous, and most of them are well chosen. For the young man and the practitioner the book is a safe teacher and gives considerable detail; for the surgeon it is valuable as a reference work because of the large and varied experience of the writer.

CLINICAL BACTERIOLOGY AND HAEMATOLOGY FOR PRACTITIONERS. By W. D'Este Emery, M.D., B.Sc. Sixth edition. Cloth. Price, $3.50. Pp. 310, with illustrations. Philadelphia: P. Blakiston's Son & Co., 1921.

The alterations in this edition are, as the author states, unimportant and mostly verbal. The work is divided into three parts, on bacteriology, hematology and cytodiagnosis. In the bacteriological section the author discusses clearly and concisely the methods involved in such work, omitting, however, much reference to anaerobic cultures, which are today of so much importance in bacteriologic investigations. The chapter on the diagnosis of certain diseases is especially valuable, as it points out the methods to be employed in the bacteriologic diagnosis of various diseases and gives much attention to the interpretation of the results obtained. In his discussion of syphilis the author includes a brief but adequate description of the Wassermann reaction. The section on hematology includes the usual routine blood examinations, such as the determination of hemoglobin, the counting of the red and white cells, the differential counting of the white cells, and the examination of stained smears for various abnormalities. This section does not deal at all with the methods of blood chemistry, which are assuming so much importance in the present-day diagnostic work. The chapter on cytodiagnosis treats of the methods of examination of the various exudates and transudates, with especial reference to their cellular peculiarities. This book should find wide acceptation by physicians who may wish to do their own laboratory work and who desire a brief but reliable guide for the proper performance of such work.

ARTERIOSCLEROSIS, CARDIOVASCULAR DISEASE. Their Relation to Infectious Diseases. By William Ophüls, Professor of Pathology, Stanford University Medical School. Paper. Price, $1. Pp. 102. Stanford University, California, 1921.

This monograph is based on the study of 500 consecutive necropsies performed by the author personally or under his personal supervision. These necropsies, in connection with the clinical histories, have led Ophüls to the conclusion that arteriosclerosis is closely connected with injury to the arteries resulting from various infections. This relation is carefully considered, as is the relation of arteriosclerosis to hypertension and nephritis. The subject is handled in a scholarly manner. It is a real advantage to have the results of Ophüls gathered into this one compact volume.

A TREATISE ON THE TRANSFORMATION OF THE INTESTINAL FLORA, WITH SPECIAL REFERENCE TO THE IMPLANTATION OF BACILLUS ACIDOPHILUS. By Leo F. Rettger, Professor of Bacteriology, Yale University, and Harry A. Cheplin, Seessel Fellow in Bacteriology, Yale University. From the Sheffield Laboratory of Bacteriology, Yale University. Cloth. Price, $3. Pp. 135. New Haven: Yale University Press, 1921.

The contents are indicated by the title. It appears that the change in the intestinal flora on feeding sour milk containing *B. bulgaricus* is not due to implantation of this bacillus but to stimulation of the growth of *B. acidophilus* by the sugar in the milk. Milk cultures of *B. acidophilus* are shown to be effective in changing the intestinal flora in man. While no claims are made that such milk cultures have therapeutic value, suggestions to that effect have not been suppressed.

Miscellany

DISORDERED HEART ACTION FROM EXTRACARDIAC CAUSES

A. Mut reviews this extensive field in *Archivos de Cardiología y Hematología* **1**:196 and 299, 1920. Tachycardia, bradycardia and other disturbances in the rhythm reveal the pseudocardiopathies which are comparatively harmless. But there are many grave conditions elsewhere which may first attract attention by their action on the heart. With nephritis, for example, it must not be forgotten, he reiterates, that oliguria is a sign that the heart is weakening, and treatment should be addressed to the heart rather than to the kidneys. With diseases of the lung the heart may suffer and overshadow the emphysema and bronchitis. By treatment of the bronchitis, etc., and breathing exercises, we improve conditions and the heart functioning returns to normal. To distinguish between cardiac asthma and essential asthma may be difficult during the paroxysm, but the condition in the interval usually clears up the diagnosis. He recalls that the stomach, liver and uterus influence the heart by mechanical means, by toxic, and by reflex means. The toxic action from the liver may induce such changes in the circulation as to warrant the term hepatic heart. But the uterus, he says, is the most liable of all organs to induce reflex action. He quotes an old saying that "Woman is a uterus served by organs" but he thinks it would be more correct to say "The uterus is the petted child of the female organism." The uterus lords it over the heart. He discusses further the heart in obesity, in gout, in diabetes, in autointoxications and puberty, with directions for management of each class. It is often useless to give heart stimulants in autointoxications, as still better effects are realized by restriction to milk and vegetables, with little salt, massage of the abdomen to stimulate the circulation in the portal vein, supplemented by diuretics which will relieve the heart without acting on it directly.

MENTAL DISEASES IN TWELVE STATES DURING 1919

The data comprised in a study made by H. M. Pollock and E. M. Furbush (*Mental Hygiene* **5**:353 [April] 1921) were obtained from the standard tables filled out by forty-six state hospitals of twelve states for the fiscal year ending in 1919. The state hospitals represented are distributed as follows: Arizona 1, Colorado 1, Iowa 4, Maine 2, Massachusetts 12, Nebraska 3, New Hampshire 1, New York 15, Rhode Island 1, South Carolina 1, South Dakota 1, Virginia 4. This study is the first attempt to use for comparative purposes the results of the uniform system of statistics of mental diseases which was adopted by the American Medico-Psychological Association in 1917. At the beginning of the fiscal year of 1919, the hospitals comprised in this study had a total of 79,039 patients on their books; they received during the year 16,176 first admissions, 4,476 readmissions, and 1,660 transfers; they discharged 3,325 patients as recovered, 4,025 as improved, 2,041 as unimproved, 886 as without psychosis, and 1,745 by transfer to other institutions for mental diseases. The deaths numbered 9,309. The number of patients remaining on the books of the hospitals at the end of the fiscal year was 79,960, an increase of only 921, or 1.2 per cent., over the number at the beginning of the year. The high death rate during the fiscal year of 1918-1919, due to the influenza epidemic, was a factor in preventing a larger increase. Arizona, Rhode Island, and Virginia were the only states in which there was a decrease in patients under treatment during the year, although the increase was very small in several of the other states. The main clinical groups in which the male first admissions notably exceed the female were: dementia praecox, 2,230 males, 2,050 females; general paralysis, 1,226 males, 288 females; with cerebral arteriosclerosis, 537 males, 307 females. The clinical groups in which the female first admissions notably exceed the male were: manic-depressive insanity, 922 males, 1,347 females; with other somatic diseases, 262 males, 415 females; involution melancholia, 123 males, 330 females. The rate of general paralysis, according to these figures, is more than four times as high in cities as in rural districts. Alcoholic psychoses are also comparatively rare in rural districts. The onset of dementia praecox occurs earlier in life among males than among females. The relatively high percentage of women with general paralysis in the separated or divorced group is noteworthy. On the whole, the figures given indicate that each group of mental diseases presents its own problem and should receive separate consideration.

TRINITROTOLUENE POISONING AND PHAGOCYTIC ANEMIA

Trinitrotoluene poisoning presents an important problem in industrial medicine, since the health of many workers in munition plants has been and may be seriously impaired by it. Voegtlin, Hooper and Johnson have recently presented several new and important facts relaitve to the nature of poisoning with this substance (Trinitrotoluene Poisoning. Its Nature, Diagnosis and Prevention, Bull. 126, Hyg. Lab., U. S. P. H. S., 1920). The poisoning is mainly brought about by trinitrotoluene or its derivatives, and not by impurities contained therein. Trinitrotoluene, after being absorbed through the respiratory passages, gastro-intestinal tract or skin, is reduced to hydroxylamin, which is conjugated with glycuronic acid and excreted as such in the urine, where it may be detected by the Webster test; but the test, either positive or negative, has no prognostic importance. By many the anemia in trinitrotoluene poisoning is supposed to be due to hemolysis and changes in the hematopoietic organs caused by the chemical, but Voegtlin and his co-workers appear to have demonstrated that trinitrotoluene does not give rise to hemolysis in vitro and has no pernicious effect on the marrow. They observed, both in clinical cases and in animals poisoned experimentally, fragmentation of the erythrocytes in the peripheral circulation and accumulation of erythrocytes in the phagocytic cells of the spleen, lymph nodes, marrow and liver. On this account they believe that trinitrotoluene causes changes in the erythrocytes that subject them to phagocytosis, and for this reason they term the anemia phagocytic anemia. The development of icterus, they hold, is not due to any morbid changes in the liver itelf, such as necrosis or atrophy, which were not found in their experiments, but they assume that the icterus is of an obstructive type due to the excessive amount of bile pigments from destruction of erythrocytes, the hepatic cells being unable to excrete the pigments promptly. In some animals in the early stage of trinitrotoluene poisoning, incoordination develops and gradually disappears. This condition has been attributed to a temporary disturbance of the cerebellar centers, but there is no substantial evidence to this effect, and it will be interesting to learn just how incoordination actually develops.

THE HOMERIC DESCRIPTION OF THE FIRST MEDICAL SCHOOL

The earliest college of medicine, says Mousson-Lanauze (*Paris médical*, Feb. 26, 1921), rose, as was proper, in the cradle of civilization, in ancient Greece, in Upper Thessaly, on the slopes of Mount Pelion. Its founder and its first and only professor was Chiron, the centaur. All Greek heroes were taught by him, but among his pupils only one, Aesculapius or Asclepius, equaled the master in renown. He learned from his teacher the curative properties of plants, the art of treating wounds, and the formulas to relieve or eradicate disease. In fact, he even surpassed his master; and the tradition goes that, not satisfied with curing the sick, he even attempted to resuscitate the dead. Aesculapius' two sons, Machaon and Podalyre, were also sent by him to the Thessalian school. If we may credit the Homeric epic, they were the real organizers of the first known army medical corps, in which capacity they took part in the siege of Troy. All of Chiron's pupils became more or less famous. According to Mousson-Lanauze, all these legends, which finally became part and parcel of Greek life, were testimonials to the profound respect in ancient times for scientists and especially

physicians. "A physician," says the Iliad, "is worth many men." Homer reflects the popular views which placed among the gods Apollo, the father of medicine, Aesculapius, his son, and Chiron, the wondrous centaur who founded the first school of medicine.

Medicolegal

Death from Wounds Resulting in Septic Poisoning

(Harrison v. State (Okla.), 195 Pac. R. 511)

The Criminal Court of Appeals of Oklahoma, in affirming a judgment of conviction of defendant Harrison of manslaughter in the first degree, holds that where a wound inflicted by the defendant resulted in septic poisoning, from which the wounded man died, the defendant was responsible for the death. The court says that the defendant fired two shots from a shotgun, one of which shots struck the man he wounded in the leg and the other in the shoulder. Septic poisoning set up, and the man, after lingering seventeen or eighteen days, died as a result of the poisoning. It appeared that a wad from one of the loads and some shot and perhaps articles of clothing lodged in the wounds and contributed to some extent to the infection. It was urged that the defendant ought not to have been convicted, because it was undisputed that neither of the wounds inflicted was necessarily fatal, and that death would not have resulted except for the fact that proper case was not taken of the wounds, and that septic poisoning set up in the wounds, death resulting from the poisoning and not because of the fatal nature of the wounds themselves. But the wounds caused the poisoning to set up. The defendant could not escape responsibility for the death because of the intervening cause of the poisoning. Such is not the rule in this jurisdiction. The rule here is, as stated in 21 Cyc. 700, if a wound or other injury cause a disease, such as gangrene, empyema, erysipelas, pneumonia or the like, from which the injured person dies, he who inflicted the wound or other injury is responsible for the death. He who inflicted the injury is liable even though the medical or surgical treatment which was the direct cause of the death was erroneous or unskilful, or although the death was due to negligence or failure by the injured person to procure treatment or take proper care of the wound. The only exception to this rule is found in the state of Texas, where by statute it is provided that on the infliction of a wound not necessarily fatal, if by gross negligence on the part of the person who received the wound or persons having his custody, the person wounded is permitted to die by gross negligence, the person inflicting such wound cannot be held guilty of homicide. But as there was no showing of gross negligence on the part of the person injured in this case, that rule could not even be invoked were such a statute in effect in Oklahoma. On the contrary, it was shown that the injured man was treated by a regularly licensed physician, on whose suggestion the man was taken to a hospital for treatment, at which place he died.

Valid Law Against Advertising of Medical Business

(Glass v. Board of Medical Examiners et al. (Calif.), 195 Pac. R. 73)

The District Court of Appeal of California, Second District, Division 1, in affirming a judgment that affirmed an order of the board of medical examiners revoking the certificate of appellant Glass licensing him to practice medicine and surgery in that state, says that the medical practice act of the state provides for the revocation of a certificate whenever the holder thereof is guilty of unprofessional conduct. The words "unprofessional conduct" are declared, by Subdivision 3 of Section 14, to mean "all advertising of medical business which is intended or has a tendency to deceive the public or impose upon credulous or ignorant persons, and so be harmful or injurious to public morals or safety." It appeared that the appellant's license was revoked by reason of acts constituting a violation of this subdivision, and he argued that the subdivision was unconstitutional for the reason that it denied to citizens the equal protection of the law and was class legislation. But that proposition was without merit. The law does not recognize the right of any person to do acts which are harmful or injurious to public morals or safety. So far as the penalty was concerned, it was made as broadly applicable as the subject-matter would permit; in fact, it included the entire public to which it could possibly apply, since a certificate to practice medicine could not be taken away from a person who did not hold any such certificate.

It was contended, further, that Subdivision 3 was void because of uncertainty and indefiniteness, the principal authority relied on to support that contention being the case of Hewitt v. Board of Medical Examiners, 148 Calif. 590, 84 Pac. 39, wherein it was held that the provision that "all advertising of medical business in which grossly improbable statements are made" should constitute unprofessional conduct was too indefinite to state an offense. But a comparison of the language used by the supreme court of the state in that case with the words used in Subdivision 3 under consideration here was sufficient to test fairly the whole matter. The legislation was evidently framed with the direct purpose and intention of stating a rule in conformity with the principles declared in the Hewitt case. Under these provisions a certificate could not be revoked unless it was first determined by the board that the advertising complained of was in fact false and was intended or had a tendency to deceive the public or impose on credulous or ignorant persons, and so be harmful to public morals or safety. It would not be possible to frame a definition of unprofessional advertising which would anticipate in terms every form of advertisement which unscrupulous practitioners might thereafter devise. This being so, it cannot reasonably be held necessary to the validity of the statute that it go further than to state a reasonable definite rule under which all such specific acts might be included. This the court thinks has been done in the terms of the statute so far as these were presented for consideration. Precisely the same words are found in the medical practice act of the state of Washington. In State Board of Medical Examiners v. Macy, 92 Wash. 614, 159 Pac. 801, this provision was attacked on the same grounds urged by the appellant here. After an extensive review of decisions from various states, including Hewitt v. State Board of Medical Examiners, the court held that this definition of unprofessional conduct in advertising was not void or unconstitutional for vagueness or uncertainty.

The Supreme Court of California denied the appellant a hearing.

Operations Required by Compensation Law—Evidence

(Schiller v. Baltimore & Ohio R. R. Co. (Md.), 112 Atl. R. 272)

The Court of Appeals of Maryland says that the real controversy here was whether the claimant for compensation, who had sustained a hernia while in the employ of the railroad company, should have submitted to an operation, and, if the jury so found, whether compensation should have been continued beyond the time which would have been required for his recovery after such an operation. He contended that one should not, as a condition precedent to continued compensation during disability, be required to submit to an operation the result of which might be fatal even if such result was so unlikely as to make the danger practically negligible. To support this, he cited three New Jersey cases. But the overwhelming weight of authority is opposed to that view, holding that a man cannot continue to receive compensation and at the same time refuse to submit to proper medical or surgical treatment such as an ordinarily reasonable man would submit to in like circumstances. The safety of an operation for hernia and its probable effect in removing the disability of the claimant therefore bore on the merits of the case and were relevant questions.

There was no error in permitting a physician to testify that the place on the body which a witness pointed to as the place where he had a rupture which was cured by certain treatment which the claimant testified he was using was not a place where the sort of hernia the claimant had could be. Nor was there error in permitting the physician to answer a question as to his opinion of the effect of the treatment which the claimant had testified that he was giving himself.

Service of Alienist Not Chargeable to Incompetent

(McClenahan v. Howard (Calif.), 195 Pac. R. 68)

The District Court of Appeal of California, First District, Division 1, says that the plaintiff sought to recover a sum slightly in excess of $1,800 for professional services rendered as an alienist. It appeared that the defendant had created some kind of a disturbance which resulted in her arrest on a charge of insanity made by a Mr. Morris, who was the attorney for her brother and certain members of the family. In a sanatorium devoted chiefly to alcoholic cases, she in some manner obtained and imbibed a large quantity of whisky, and early in the morning the physician in charge informed the plaintiff over the telephone that one of the patients was in a precarious condition. The plaintiff immediately went to the sanatorium and remained there, rendering assistance until nearly noon, and until the defendant was out of danger. On his return to the office of the sanatorium he was met by a man who said he was personal attorney for the defendant, which man made some suggestion that the plaintiff look into the case. In the afternoon, at the suggestion of the plaintiff, there was a family gathering held at his office in order to get information and history of the defendant's case to make the investigation as to her mental status. The attorney who made the insanity charge was present also. From then on for a period covering sixty-eight different days, the plaintiff rendred services either by observation of the patient, consultation with her relatives and friends, or in attendance on the court. For about nine months the defendant was practically in custody under the charge of insanity, after which that charge was dismissed, and a new proceeding was brought which resulted in the appointment of a guardian for both her person and her estate. The plaintiff never acted as her physician at any time. He never prescribed for her. He did not treat her. The only examinations he made were by way of observation. He refused to consult with her attorneys. He declined to report the result of his opinion or tell them anything, unless Mr. Morris, who made the insanity charge, instructed him so to do. He was a witness and gave testimony against the defendant in the insanity charge and the contested guardianship proceedings, and was called by the attorneys acting against her. The only circumstances referred to as indicating that he was acting at the request of the defendant were that it did not appear that she objected to the rendering of his services, and that once, at her request over the telephone, he took lunch with her and some of her relatives. There was nothing, however, to indicate that she had knowledge while in custody under a warrant of insanity that any services were being rendered for her benefit. Under all the circumstances mentioned, the finding that the services were not rendered at the request of the defendant, but were rendered at the request of her relatives, was not without support in the evidence.

It was urged that the proceedings taken against the defendant were not adversary in their nature, and also were in fact beneficial to her. As to the first proposition, the authorities are to the contrary. As to the second proposition, in the absence of evidence that the services were rendered at the defendant's request, it developed on the plaintiff to prove that they were beneficial to her. Cases in which the estates of minors, idiots, insane and persons bereft of reason by the sudden stroke of accident or sickness are held liable for necessaries furnished in good faith while in that condition had no application here, for in those cases a recovery is permitted on the theory that the services were necessary or beneficial. But the court knows of no presumption that services rendered in observation and consultation by an expert alienist to determine the mental condition of a person are either necessary or beneficial to such person. The record in this case did not indicate that, other than the time when the defendant was unconscious, she ever received any medication or any advice for her physical or mental welfare or improvement, or for the palliation of any of her infirmities; and it was likewise silent as to any benefit to her property because of any act or suggestion by the plaintiff. Wherefore the court affirms a judgment in the plaintiff's favor for $45 only, which was deemed the reasonable value of the services which he rendered to the defendant at the time when she was unconscious.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Otolaryngology, Philadelphia, Oct. 17-22.
Amer. Assn. of Obst., Gynec. and Abdom. Surgs., St. Louis, Sept. 20-22.
American Association of Railway Surgeons, Chicago, Oct. 18-20.
American College of Surgeons, Philadelphia, Oct. 24-28.
American Electro-Therapeutic Association, Washington, D. C., Sept. 7-10.
American Roentgen Ray Society, Washington, D. C., Sept. 27-30.
Colorado State Medical Society, Pueblo, Oct. 5-7.
Idaho State Medical Association, Twin Falls, Oct. 6-7.
Indiana State Medical Association, Indianapolis, Sept. 28-30.
Kentucky State Medical Association, Louisville, Sept. 27-29.
Medical Association of the Southwest, Kansas City, Mo., Oct. 25-28.
Mississippi Valley Medical Association, St. Louis, Oct. 13-15.
Missouri Valley, Medical Society of the, Kansas City, Mo., Oct. 25-28.
New England Surgical Society, Worcester, Mass., Sept. 21-22.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 3-6.
Utah State Medical Association, Salt Lake City, Sept. 13-14.
Vermont State Medical Society, St. Albans, Oct. 13-14.
Virginia, Medical Society of, Lynchburg, Oct. 18-21.
Wisconsin, State Medical Society of, Milwaukee, Sept. 7-9.
Wyoming State Medical Society, Casper, Sept. 6-8.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

May 15, 1921, **29**, No. 1

Development of Eyelids of Albino Rat, Until Completion of Disjunction. W. H. F. Addison and H. W. How, Philadelphia.—p. 1.
Histochemical Studies on Mechanism of Renal Secretion. E. J. Stieglitz, Chicago.—p. 33.
Studies in Dynamics of Histogenesis. IV. Tension of Differential Growth as a Stimulus to Myogenesis in Limb. V. Compression Between Accelerated Growth Centers of Segmental Skeleton as Stimulus to Joint Formation. VI. Resistances to Skeletal Growth as Stimuli to Chondrogenesis and Osteogenesis. E. J. Carey, Milwaukee.—p. 93.
*Mitochondria and Golgi Apparatus of Giant Cells of Red Bone-Marrow. H. E. Jordan, Charlottesville, Va.—p. 117.

Giant Cells in Bone Marrow.—The results of his cytologic investigation of giant cells in the red bone marrow of the rabbit and the guinea-pig lead Jordan to the tentative conclusions that the so-called trophospongium of these cells as demonstrable in Carnoy fixed tissue is an artefact, that the Golgi network consists of anastomosing varicose fibrils and rods, and that the Golgi apparatus and mitrochondria are only morphologically different portions of the same substance, the former resulting from a fusion of the latter while aggregated in the neighborhood of the centrosphere.

July 15, 1921, **29**, No. 2

*Structure and Multiplication of Bone Cells Facilitated by New Technic. T. H. Bast, Madison, Wis.—p. 139.
Histogenesis of Dense Lymphatic Tissue of Intestine (Lepus): Development of Lymphatic Tissue and Blood-Cell Formation. J. S. Latta, Ithaca, N. Y.—p. 159.
Interstitial Cells of Urodele Testis. R. R. Humphrey, Ithica, N. Y.—p. 213.
Cultivation in Vitro of Liver Cells from Chick Embryo. R. S. Lynch, Baltimore.—p. 281.

Study of Bone Cells.—The following procedure gave Bast satisfactory results in the study of bone cells: (1) Fix small pieces of thin bone in 95 per cent. alcohol. (2) Wash in water. (3) Stain for from eight to twenty-four hours in a dilute aqueous solution of gentian violet. (The stain should be diluted until it is transparent when viewed in a test tube.) (4) Dehydrate as rapidly as possible in 75 per cent., 95 per cent. and absolute alcohol. (5) Clear in benzol. (6) Place in a watch glass of benzol and carefully scrape off all of the periosteum under a binocular microscope.

American Journal of Medical Sciences, Philadelphia

July, 1921, **162**, No. 1

*Leukocytic Picture in Influenza. C. H. Bunting, Madison, Wis.—p. 1.
*Basal Metabolism Estimations in Goiter. C. H. Frazier and F. H. Adler, Philadelphia.—p. 10.
Paroxysmal Auricular Fibrillations and Flutter. E. M. Smith, Chicago.—p. 13.

Relation of Endocrine System to Glycemic Reaction Following Injection of Homologous Protein. G. L. Rohdenburg and O. Krehbiel, New York.—p. 28.
*Leukocytes After Hemorrhages. J. H. Musser, Jr., Philadelphia.—p. 40.
*Polariscopic Study of Urines of Group of Syphilitics. S. P. Taylor and K. P. A. Taylor, Philadelphia.—p. 47.
Neurogenic Irregularities of Heart in Adults. A. M. Wedd, Pittsburgh. —p. 49.
*Evaluation of Allen Method of Treatment of Diabetes Mellitus. J. R. Williams, Rochester, N. Y.—p. 62.
Application of Occupational Therapy in Civil Life to Cases Presenting Paralysis, Contracture, Fibrosis, or Lack of Coordination. J. H. Arnett, Philadelphia.—p. 73.
Use of Arsphenamin: Its Effect on the Kidneys and Its Therapeutic Results. H. B. Anderson, Philadelphia.—p. 80.
Treatment of Tuberculosis Adenitis by Roentgen Rays and Radium. R. H. Boggs, Pittsburgh.—p. 90.
Gallbladder Disease. T. G. Schnabel, Philadelphia.—p. 95.
Physical Exercise in Heart Disease. T. B. Barringer, Jr., New York. —p. 103.
Occultism with Particular Reference to Some Phases of Spiritism. C. K. Mills, Philadelphia.—p. 113.

Leukocytes in Influenza.—Bunting states that there is a consistency in the blood findings of cases of influenza, which would seem to justify certain conclusions. This is the basis for the point emphasized earlier, that in practice, influenza patients should not be allowed to get up and resume their ordinary life immediately on the cessation of fever, but should be kept quiet and isolated until their blood has approached at least the normal leukocytic formula, which apparently requires almost a week from the cessation of the fever. The great platelet decrease in the blood in influenza, apparent in blood smears, but established by the actual counts of Kinsella and Broun, is apparently responsible for the hemorrhagic character of the pneumonic exudate in that complication of the disease.

Basal Metabolism in Goiter.—Frazier and Adler state that estimations of basal metabolism are of value in the following ways: Positive: In eliminating those cases which will not be benefited, and might be made worse by operation. Supplemental: (*a*) In offering confirmatory evidence of the degree of toxicity. (*b*) In offering a quantitative rather that a qualitative index for use in diagnosis and treatment. Problematical: It may be possible to determine by the metabolic rate how much thyroid tissue may be removed. The reduction of the metabolic rate to points well below that of the normal range (10) should imply that too much secreting substance had been removed. Such cases must be studied clinically for signs of hypothyroidism. Of two patients whose metabolic rate after operation fell well below normal—in one to —17 per cent. the second to —30 per cent. Neither has shown signs of hypothyroidism.

Leukocytes After Hemorrhage.—According to Musser a marked leukocytosis is the general but not constant rule after hemorrhage and is of variable duration. The persistence of the leukocytosis would seem to bear a general relation to the severity of the hemorrhage. This leukocytosis is made up largely of an increase in the polymorphonuclear neutrophils. Eosinophils do not disappear from the circulating blood as they do in the leukocytosis of sepsis and other conditions. The factors which seem to play a part in the pathogenesis of the condition are: retention of the leukocytes in the blood stream during hemorrhage by adhesion to the vessel walls with diminution of blood volume, and, presumably, an outpouring of white cells from the bone marrow after hemorrhage in response to an unknown stimulus.

Polariscopy of Urine of Syphilitics.—The study made by the Taylors of fifty proved syphilitics without manifest true nephritis failed to reveal the double refractile lipoids.

Valuation of Allen Treatment.—Williams asserts that the Allen treatment of diabetes is of little avail when serious infections are present or when the patient is afflicted with the degenerative processes of old age. Many patients find the Allen treatment too exacting and rigorous. A very considerable proportion of those persons who die from diabetes are patients with severe cases who wilfully violate their diets and they rapidly succumb to the malady. Comparatively few fatal cases, less than 14 per cent., were persistently faithful to the treatment. Many patients unquestionably die because of lack of courage. Patients with serious or hopeless complications frequently abandon dietary treatment. In many cases in adults death resulted because of the inability of the patients to provide suitable care. It will be noted that comparatively few were faithful to the treatment. Neglected diabetes is more rapidly and certainly fatal in a child than in an adult. Persistent and careful treatment imposes on the parents a task requiring much fortitude and intelligence. There is little question but that many failures ascribed to the treatment are due to lack of faithfulness on the part of the patient. The majority of patients who live within their food tolerance gain in physical vigor; furthermore the distressing symptoms incident to the disease noticeably lessen. Moderately severe cases do surprisingly well. Severe cases which have not been rigidly dieted are markedly benefited by the institution of the Allen treatment. Patients who have been dieted carefully for long periods do less well. Kidney functional tests in thirty-nine cases after the administration of thirty doses of arsphenamin, each dose consisting of 4.6 g. and distributed over a two-year period failed to give any conclusive evidence of injury to the kidneys. Barringer says that physical exercise must not only increase the resistance to general infections of patients with heart disease exactly as it does normal people, but that in all probability it makes the heart itself more resistant to the serious menace of reinfections. There can be no excuse in the majority of instances for advising heart patients against exercise nor any reason for not being specific and definite when prescribing this valuable threapeutic measure.

American Journal of Physiology, Baltimore

July 1, 1921, **56**, No. 3

Gastric Juice in Pancreatic Diabetes. M. E. Steinberg, Chicago.—p. 371.
Studies of Thyroid Apparatus. II. Changes in Amount of Intestine-Contracting Substances of Thyroid of Albino Rat According to Age. F. S. Hammett and K. Tokuda, Philadelphia.—p. 380.
Studies of Thyroid Apparatus. III. Action of Thyroxin on Isolated Intestinal Segment. F. S. Hammett, Philadelphia.—p. 386.
Studies in Carbon Monoxid Asphyxia. I. Behavior of Heart. H. W. Haggard, New Haven, Conn.—p. 390.
*Studies in Nutrition. VIII. Nutritive Value of Proteins of Tomato Seed Press Cake. A. J. Finks and C. O. Johns, Washington, D. C. —p. 404.
Mode of Action of Low Temperatures and of Cold Baths in Increasing Oxidative Processes. W. E. Burge and J. M. Leichsenring, Urbana, Ill.—p. 408.
Studies on Consecutive Phases of Cardiac Cycle. I. Duration of Cycle and Criteria for Precise Determination. C. J. Wiggers, Cleveland.—p. 415.
Studies on Consecutive Phases of Cardiac Cycle. II. Laws Governing Relative Durations of Ventricular Systole and Diastole. C. J. Wiggers, Cleveland.—p. 439.
Effect of Short Spells of Rest on Physical Efficiency as Measured by a Bicycle Ergometer. L. A. Wallrich and P. M. Dawson, Madison, Wis.—p. 460.
Surface Temperature of Elephant, Rhinoceros and Hippopotamus. F. G. Benedict, E. L. Fox and M. L. Baker, New York.—p. 464.
Studies on Responses of Circulation to Low Oxygen Tension. V. Stages in Loss of Function of Rhythm Producing and Conducting Tissue of Human Heart During Anoxemia. C. W. Greene, Columbia, Mo., and N. E. Gilbert, Chicago.—p. 475.
Oscillations in Diaphragm Muscle. L. B. Nice and A. J. Neill, Norman, Okla.—p. 487.

Nutritive Value of Tomato Seed Press Cake.—A diet in which tomato seed press cake furnished the sole source of protein and water-soluble vitamin enabled albino rats to grow at the normal rate. Such a diet was made adequate by the addition of starch, a suitable inorganic salt mixture, butter-fat and lard. Normal growth was also obtained when the butter fat of the above diet was replaced by lard.

American Journal of Roentgenology, New York

July, 1921, **8**, No. 7

Reduction of Bone Density. D. B. Phemister, Chicago.—p. 355.
Making and Filing of Records in Section on Roentgenology in Mayo Clinic. R. D. Carman, Rochester, Minn.—p. 372.
Congenital Nonrotation of Stomach. L. C. Kinney, San Diego, Calif. —p. 383.
Transposed Viscera. W. O. Upson, Battle Creek, Mich.—p. 385.
Case of Diverticulum of Lower Portion of Esophagus. H. W. Dachtler, Toledo, Ohio.—p. 389.
Total Radiation Falling on Surfaces Exposed to Point Sources. J. Kaufman, Brooklyn.—p. 390.
Roentgen-Ray Spectrums and Structure of Matter. J. M. Cork, Ann Arbor, Mich.—p. 393.
Roentgenography of Mastoid. A. S. Macmillan, Boston.—p. 399.
Head Rest for Roentgenography of Accessory Sinuses. G. W. Grier, Pittsburgh.—p. 402.
Table Designed for Simplification of Pneumoperitoneum Technic. L. R. Sante, St. Louis.—p. 404.
Radium in Treatment of Myxomatous Nasal Polypa. H. R. Lyons, Rochester, Minn.—p. 407.

American Review of Tuberculosis, Baltimore

July, 1921, **5**, No. 5

*Hypertrophic Osteoarthropathy in Pulmonary Tuberculosis. J. Corper and P. Cosman, W. M. Gilmore and L. T. Black, Denver.—p. 357.
Survival and Virulence of Tubercle Bacilli in Excised Animal Lymph Nodes. G. B. Webb, C. T. Ryder and G. B. Gilbert, Colorado Springs, Colo.—p. 388.
What Constitutes the Early Recognition of Tuberculosis? S. Simon, St. Louis.—p. 397.
Problem of Child with Latent Tuberculosis. H. J. Achard, Chicago.—p. 405.
*Vaccines in Treatment of Tuberculosis. A. Minnig, Denver.—p. 421.

Hypertrophic Osteo-Arthropathy in Pulmonary Tuberculosis.—In order to obtain information on the incidence of the various manifestations of hypertrophic osteoarthropathy affecting the hands and feet of consumptives in various stages of the disease and classified according to the activity and approximate duration of the pulmonary condition, the hands and feet of 102 pulmonary tuberculosis patients were examined by Corper and his associates. They found a high percentage of hyperconvex nails regardless of the stage of the disease. The incidence on the hands is exactly the same as that on the feet. Lateral ridging of the finger nails in the consumptive becomes more marked, and pronounced transverse and mixed ridging is much more frequent. Hypertrophy of the soft tissues of the hands and toes, especially to be seen at the tips of the fingers and thumb, is common. The incidence of bone hypertrophy of the hands and feet, especially to be seen as burring of the tips of the distal phalanges and periosteal thickening of the shafts of the phalanges and the metacarpal and metatarsal bones is common to a pronounced degree. The incidence of bone hypertrophy is about the same in the toes and in the fingers. The incidence of bone hypertrophy is greater in the active than in the inactive cases. No significant differences in the incidence of the manifestations of hypertrophic osteoarthropathy were noted, whether the pulmonary condition had been of short (one year or under) or long (over three years) duration. There is also found a high incidence of hypertrophic involvement of the gums which is slightly more pronounced in the active than in the inactive cases. The teeth show nothing of especial significance. Hypertrophy of the bony processes of the jaws (mandible and maxilla) is fairly common, the incidence being greater in the active cases. Hypertrophy in the midline of the hard palate is fairly common, and the incidence is greater in the active cases, which seems to correlate this condition with general hypertrophic osteoarthropathy. There seems to be very little correlation between the above conditions and the actual duration of the pulmonary condition. The condition of the soft palate and tongue could not be correlated with the general condition of hypertrophic osteoarthropathy. Although malar thickening and globular formation of the nose was noted, its relation to hypertrophic osteoarthropathy could not be definitely established because of the difficulty in interpreting these conditions in the patients studied.

Vaccines in Tuberculosis.—The vaccines used by Minnig in sixty-three cases were all autogenous and prepared in the usual way. Only one organism to a vaccine was preferred, but in a few cases two were used. The organisms used were the streptococcus, *Streptococcus hemolyticus, Streptococcus viridans*, pneumococcus, pneumostreptococcus, and the pneumococcus and streptococcus together. The vaccine was usually prepared with five hundred million killed organisms to the cubic centimeter. A total of seventy-seven vaccine courses was given. In twenty-four cases there was a decrease in the amount of sputum, in six there was no change, and in sixteen the sputum increased in quantity. In the remaining cases the records are not complete. Twenty-two patients gained weight. Twenty became worse, eight remained stationary, and thirty-two were considered improved both as to subjective symptoms and physical examination. Three died: one of influenza, and two of pulmonary tuberculosis. Of the thirty-two who improved, fifteen were in stage III., ten were in stage II. and eight were in stage I. Of the remaining thirty-one who remained stationary, got worse or died, twenty-seven were in stage III., two were in stage II. and one was in stage I. The organisms which gave the best results in the above series of cases was the *Streptococcus hemolyticus*. Vaccines are contraindicated when there is present some evident form of infection outside the lung. Here the course indicated is to remove the other focus and after a month or two start vaccine therapy. The vaccine treatment is not suitable when there is a coexisting acute infection, an acute exacerbation of tuberculosis or persistently high temperature.

Boston Medical and Surgical Journal

Aug. 4, 1921, **185**, No. 5

Accessory Blindness, Differential Diagnosis and Operative Technic. L. E. White, Boston.—p. 133.
*Rare Fracture of Lower End of Humerus. L. G. Paul, Boston.—p. 145.
Reconstruction of Ears. H. F. Day, Boston.—p. 146
One Thousand Cases of General Anesthesia W. T. Bailey, Boston.—p. 147.
Significant Reactions of Arterial Tension Manifestations of Angiokinetic Energy Clinically Observed and Interpreted. C. J. Enebuske, Boston.—p. 150.

Rare Fracture of Lower End of Humerus.—A girl fell down several steps while carrying a younger child. The elbow was swollen and tender over the external part, and motion was much restricted on account of pain. There was a slight bruise of the skin just above and back of the head of the radius. She had about twenty degrees of flexion, and about the same degree of extension, without pain. The rotation was about one half normal. The bony landmarks were in normal relation, and no abnormal mobility or crepitus was noticed. The roentgenogram showed a vertical fracture of the lower end of the humerus, in which the anterior part of the articulating surface had been separated from the rest of the bone, and this fragment had been forced out of the joint, and was lying on the anterior surface of the lower end of the humerus, fully an inch above its normal position. An unsuccessful attempt was made to reduce the fracture, and incision into the joint was made on the outer side of the elbow. All attempts to replace the fragment were without success, until the forefinger was placed in the wound over the fragment, and between the fragment and the tendons of the biceps and brachialis anticus muscles, the elbow being flexed to somewhat beyond a right angle. The assistant then extended the forearm, and at the same time exerted a pull to increase the space between the humerus and the upper ends of the radius and ulna. The fragment was pushed into place. Three months later, the movements of the joint were normal.

Endocrinology, Los Angeles

July, 1921, **5**, No. 4

Parathyroid Glands: Review of Literature. W. M. Boothby.—p. 403.
Epilepsy Suggestive of Endocrine Relationship. H. J. Van Den Berg, Grand Rapids, Mich.—p. 441.
Does Administration of Anterior Lobe of Hypophysis to Tadpole Produce an Effect Similar to that Obtained from Thyroid Feeding. P. E. Smith and G. Cheney, Berkeley.—p. 448.
*Internal Secretion of Spleen. N. B. Eddy, Edmonton, Can.—p. 461.

Internal Secretion of Spleen.—The hypothesis that the spleen produces an internal secretion, Eddy asserts, is supported by (1) the changes in the erythrocytes after splenectomy, (2) the modification of the blood picture in hyperplasia of the spleen, ameliorated in some cases at least by splenectomy, and (3) the specific effects on the red blood corpuscles of injection of splenic extract. He suggests that the chief function of the spleen is the removal from the circulation of the disintegrated erythrocytes; that the splenic cells elaborate this material producing thereby an internal secretion, which was a component of the erythrocyte, either stroma or pigment portion; that this internal secretion reduces the resistance of all the red blood corpuscles, the effect amounting to actual destruction of the older cells; and, finally, that this internal secretion, possibly after modification by the liver, stimulates the eryhtrogenic function of the bone marrow and is used up in the manufacture of new corpuscles.

Johns Hopkins Hospital Bulletin, Baltimore

August, 1921, **32**, No. 366

*Chronic Meningococcus Septicemia: Report of Two Cases. H. J. Morgan, Baltimore.—p. 245.
*Pernicious Anemia. S. A. Levine and W. S. Ladd, Boston.—p. 254.
Gland Puncture as a Diagnostic Measure. C. G. Guthrie, Baltimore. —p. 266.
*Present Views on Anaphylaxis. J. Bordet, Brussels, Belgium.—p. 269.

Chronic Meningococcus Septicemia.—In both instances reviewed by Morgan the organism was isolated in pure culture from the blood stream during the course of a long septic disease. Gratifying therapeutic results were obtained by the use of specific serum.

Pernicious Anemia.—A clinical study was made by Levine and Ladd of 150 consecutive cases with special reference to gastric anacidity. In seven cases the subsequent course of the disease either indicated that the diagnosis was wrong or threw considerable doubt on its correctness. The gastric secretion in the fasting contents and after an Ewald test breakfast was analyzed in 107 of the 143 cases of pernicious anemia. In only three cases was free hydrochloric acid found at any time in the gastric secretion, and in two of these cases the diagnosis of pernicious anemia was questioned. These figures, then, show a persistent anacidity in 104, or 99 per cent. of cases of pernicious anemia. Pepsin was tested for in a small number of cases and was always found lacking. In five patients who showed varying amounts of free hydrochloric in the gastric secretion, operation, postmortem examination or subsequent findings practically ruled out pernicious anemia. A distinct familial incidence was discovered in these 143 cases. In nine patients there was a definite family history of pernicious anemia in some other member of the family. In two others there was a history of death from an unknown type of anemia. Forty-one had a family history of tuberculosis or cancer or of both, and as these diseases are easily confused with pernicious anemia, these figures may well include cases of anemia. Pernicious anemia is less frequent in the Italians, Russian Jews, and immigrants from eastern Europe, than in Americans, Canadians, or immigrants from Ireland, England, Sweden or Denmark. Syphilis bore no relation to the development or course of pernicious anemia in this series. Of 143 patients, six, 4.3 per cent., gave a positive Wassermann, which is about one third the percentage of positive Wassermann reactions in all medical patients admitted to the hospital. When the Wassermann reaction was positive, antisyphilitic treatment did not alter the course of the anemia. The presence of eosinophilia is a common finding in pernicious anemia. Out of the 143 patients, fifty-four showed 5 per cent. or more at one time or another. Even a very high eosinophilia—25 per cent. or more—is not incompatible with the disease. In 76.9 per cent. of the cases the blood smear might be called typical of pernicious anemia, in 18.2 per cent. it was suggestive and in 4.9 per cent. it was atypical or within normal limits. This is in striking contrast with the more constant finding of anacidity. Of 127 patients in whom the appearance of the tongue was described, in 63.8 per cent. it was typically smooth and atrophic, in 19.7 per cent. it was suggestive, and in 16.5 per cent. its appearance was about normal. Notwithstanding the fact that this disease belongs to adult age, the hair seems to turn gray prematurely and often takes on a strikingly silky white appearance.

Anaphylaxis.—Bordet states that it would be quite unjustifiable, however correct may be many assumptions of the cellular theory, to disregard the humoral side of the anaphylactic phenomena. Anaphylatoxin has undoubtedly much to do with real anaphylaxis and even did such a connection not exist in reality, the capacity for normal serum to be converted readily into a poison by the action of agar is an unexpected and very striking fact, enigmatic enough to deserve, at any rate the serious attention of the physiologist.

Journal of Cancer Research, Baltimore

January, 1921, **6**, No. 1

Effect of a Reduction of Lymphocytes on Growth Rate of Transplanted Spontaneous Tumors in Mice. F. Prime, New York.—p. 1.

*Comparison of Growth of Mice Which Ultimately Develop Carcinoma with Growth of Mice Which do not Develop Carcinoma. T. B. Robertson and L. A. Ray, Toronto.—p. 7.

Effect of Blood from Immune Animals on Transplantable Tumors. I. Kross, New York.—p. 25.

Inoculation of Sarcomatous Tumors into Negro Fowls, with Special Reference to Significance of Chromatophores. Y. Kon and T. Fujii, Tokyo.—p. 31.

Influence of Lymphocyte on Peritoneal Implantation of Sarcoma in Mice. E. Kellert, Albany, N. Y.—p. 41.

*Primary Spontaneous Squamous Cell Carcinomas in Mice. Studies on Incidence and Inheritability of Spontaneous Tumors in Mice. M. Slye, H. F. Holmes and H. G. Wells, Chicago.—p. 57.

Relationship of Growth and Carcinoma.—The incidence of carcinoma in mice, according to Robertson and Ray, is foreshadowed in their preceding development. The animals which ultimately develop carcinoma are distinguished by relatively energetic growth during the period of adolescence. The lead over the other animals which is thus established is usually maintained throughout life, but is sometimes lost in the latter periods of life through late accretion of weight by the animals which do not develop carcinoma. The results are interpreted to mean that the animals which ultimately develop carcinoma are those in which the anabolism and, therefore, the growth of parenchyma is exceptionally rapid. In such animals the energy of response to local irritative stimuli may be so excessive as to overcome the competition of other tissues and initiate a new growth. The longest lived animals in any group are, therefore, those in which the speed of anabolism and energy of growth of the parenchyma just fall short of those which lead, under the influence of recurrent irritative stimuli, to the formation of new growths.

Primary Carcinoma in Mice.—Among 28,000 mice dying natural deaths at all ages, and carefully examined after death, Slye, Holmes and Wells observed 153 growths of stratified and squamous epithelium that correspond by the usual standards to true neoplasms. Seventy-one were examples of squamous cell carcinoma of the skin or mouth. They differ frm the human skin carcinoma chiefly in a low incidence of metastasis. Fifteen others are of basal cell character, arose always about the head, and produced no metastases. Trauma and chronic irritation seem to play an important part in the production of skin carcinoma in mice, most of the cases occurring about the head and face, often recognizable at the site of wounds, and nearly all the skin carcinomas of the trunk arose in old scars. Skin cancers occur at a greater average age than other tumors in mice. Fifty-six examples of squamous cell keratinizing growths arising in the mammary gland were observed, predominatingly adenocarcinomas with localized areas of keratinization. These also seldom produce squamous cell metastases. Other tumors in this group were: squamous cell carcinomas of the stomach, rectum, vulva, keratinizing tumor of the lung, sebaceous adenocarcinoma of the preputial gland, and, as hitherto undescribed mouse tumors, squamous carcinoma of the vagina and adenomas of the Meibomian glands, one of these being infiltrative and apparently malignant. The literature of the comparative pathology of squamous cell carcinoma in animals is reviewed.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1921, **17**, No. 6

*Route of Administration of Drugs in Relation to Toxicity in Chemotherapeutic Investigations with Special Reference to Intrapleural Injections of Ethylhydrocuprein Hydrochlorid. J. A. Kolmer, Philadelphia.—p. 431.

*Comparative Effects of Morphin and Alkaloids of Benzylisoquinolin Group on Cardiac Muscle. P. J. Hanzlik, Cleveland.—p. 445.

*Attempt to Detect Thyroid Secretion in Blood Obtained from Glands of Individuals with Exophthalmic Goiter and Other Conditions Involving Thyroid. J. M. Rogoff and H. Goldblatt, Cleveland.—p. 473.

Liver as a Blood Concentrating Organ. P. D. Lamson and J. Roca, Baltimore.—p. 481.

Toxicity of Drugs and Route of Administration.—Ethylhydrocuprein hydrochlorid, other quinin compounds, mercurophen, arsphenamin and neo-arsphenamin were found by Kolmer to be from 0.6 to 0.7 times more toxic for white rats by intrapleural than by intravenous injection. Ethylhydrocuprein hydrochlorid and mercurophen were from seven to eight times more toxic for rabbits by supthecal injection than for white rats by intravenous injection. Ethylhydrocuprein hydrochlorid, other quinin compounds and mercurophen were from three to four times less toxic for white rats by intraperitoneal injection than by intravenous injection; arsphenamin and neo-arsphenamin were from one to two times less toxic. Ethylhydrocuprein hydrochlorid, and other quinin compounds and mercurophen were from ten to sixteen times less toxic for white rats by subcutaneous injection than by intravenous injection; arsphenamin was two times less toxic but neoarsphenamin was from one half to once again more toxic. The toxicity of ethylhydrocuprein hydrochlorid by

intravenous injection to mice, rats, guinea-pigs and rabbits was quite uniform, the highest tolerated doses being from 0.03 to 0.04 gm. per kg. of weight. The toxicity of arsphenamin and neo-arsphenamin by intravenous and subcutaneous injection varies with the test animal, the highest tolerated doses being observed with mice, next with rats and rabbits in the order named. There is no constant or uniform relation among the highest tolerated doses of different compounds for animals of the same species with the same route of administration. In very general terms a compound is apt to be about eight times more toxic by subthecal than by intravenous injection; from 0.6 to 0.7 times more toxic by intrapleural, from one to four times less toxic by intraperitoneal and from two to sixteen times less toxic by subcutaneous than by intravenous injection.

Effect of Morphin on Heart Muscle.—Using the perfused amphibian heart as a test object, the effects of a number of representatives of the benzylisoquinolin group of alkaloids were compared by Hanzlik with the action of morphin. Morphin (pyridinphenanthrene) augmented the tone, temporarily increased but later slowed the rate and shortened the amplitude, while papaverin, chelidonin, hydrastin and narcotin (benzylisoquinolin) lowered the tone, slowed the rate and reduced or abolished the amplitude of contractions of the perfused hearts. Cotarnin hydrochlorid (stypticin) and hydrastinin, which belong chemically to the benzylisoquinolin group, possessed actions similar to morphin (pyridinphenanthrene group), the general effects on rate, tonus and amplitude of contractions being equivalent to stimulation, although individual variation was encountered. Antagonistic effects on cardiac muscle were produced in mixtures and by independent applications of morphin and chelidonin, morphin and cotarnin salts, morphin and narcotin, cotarnin and hydrastin and cotarnin and chelidonin and hydrastinin and hydrastin. The results obtained indicate various difficulties involved in the correlations of chemical structure and pharmacologic actions and the unreliability of classifications derived from limited data. The results are also of value in appraising the importance of the cardiac factor in circulatory collapse resulting from the administration of these drugs or other causes, and their therapeutic value in collapse. Accordingly, therefore, morphin would not be expected to cause cardiac collapse or injure the heart in collapse by direct action, while papaverin, chelidonin, the cotarnin salts, hydrastin and narcotin could cause cardiac collapse and injure a depressed heart.

Thyroid Excretion in Blood in Exophthalmic Goiter.—Blood was examined by Rogoff and Goldblatt from thyroid glands of ten individuals on whom thyroidectomy was performed for exophthalmic goiter, three for thyroid adenoma and two for colloid goiter, and tested for the presence of thyroid secretion, utilizing the "tadpole reaction." No evidence was obtained, in any of the specimens, of the presence of active thyroid material in the blood.

Medical Record, New York

Aug. 6, 1921, **100**, No. 6

Constitution and Perspectives of Pathogenesis of Today. J. C. Hemmeter, Baltimore.—p. 223.
Arrest and Cure of Dementia Praecox. B. Holmes, Chicago.—p. 231.
Psychogenic and Neurogenic Factors in Skin Diseases. M. Scholtz, Los Angeles.—p. 234.
What Principle Must Govern Estimates of Visual Loss in Compensation Cases? W. Mehl, Buffalo.—p. 237.
Occupational Therapy in Mental Hospitals. R. A. Jackson, Danville, Pa.—p. 240.
Proctitis and Sigmoiditis. C. J. Drueck, Chicago.—p. 242.

Aug. 13, 1921, **100**, No. 7

What Medicine Owes to Italy. J. J. Walsh, New York.—p. 265.
History of Alcohol as a Substance for Human Consumption. J. C. Hemmeter, Baltimore.—p. 271.
Pharmacology of Alcohol and Its Influence on Metabolism. J. Diner, New York.—p. 273.
Effect of Alcohol on Gastrointestinal Tract. W. J. Mallory, Washington, D. C.—p. 275.
Effect of Alcohol in Therapy of Internal Diseases. C. G. Stockton, Buffalo.—p. 277.
Effect of Alcohol on Heart and Blood Vessels. L. F. Bishop, New York.—p. 279.
Effects of Alcohol on Endocrines. C. E. de M. Sajous, Philadelphia.—p. 280.
Alcohol in Surgery. R. T. Morris, New York.—p. 284.

Mental Hygiene, Albany, N. Y.

July, 1921, **5**, No. 3

Rôle of Situation in Psychopathologic Conditions. E. L. Richards, Baltimore.—p. 449.
Mental Hygiene in Industry. C. M. Campbell, Boston.—p. 468.
Has Mental Hygiene a Practical Use in Industry. B. Fisher, Boston.—p. 479.
Industrial Hygiene. W. Wright, Boston.—p. 497.
Mental Hygiene Aspects of Illegitimacy. M. E. Kenworthy, New York.—p. 499.
Educational Value of Psychiatric Social Work. M. C. Jarrett.—p. 509.
Mental Health Clinics. H. D. Singer, Springfield, Ill.—p. 519.
Significance of Spiritualism. C. O. Cheney, New York.—p. 529.
Laws Controlling Commitments to State Hospitals for Mental Diseases. J. V. May, Boston.—p. 536.
State Psychopathic Hospital. A. M. Barrett, Ann Arbor, Mich.—p. 545.
Economic Status of Forty-One Paretic Patients and Their Families. H. C. Solomon and M. H. Solomon, Boston.—p. 556.
Records and Statistics in Occupational Therapy. H. M. Pollock, New York.—p. 566.
Outline for a State Society of Mental Hygiene. E. S. Abbot.—p. 574.
Social Facts Relative to Patients with Mental Diseases. E. M. Furbush.—p. 587.

Nebraska State Medical Journal, Norfolk

August, 1921, **6**, No. 8

Lyon-Meltzer Gallbladder Drainage. A. Sachs, Omaha.—p. 225.
Traumatic and Effort Hernia. J. W. Duncan, Omaha.—p. 235.
*Rational Viewpoint in Practice of Medicine. I. S. Cutter, Omaha.—p. 243.
Civilian Surgeon's Story of Great War. H. W. Orr, Lincoln.—p. 250.

Influence of Postgraduate Study.—In order to add to the sum total of human knowledge of disease and receive the stimulus of medical research Cutter says the practitioner should keep in close touch with some center of medical teaching. This does not mean necessarily the attendance on so-called postgraduate courses offered by advertised postgraduate schools, but it means that the practitioner should for one or two weeks out of each year visit some center of medical teaching, become acquainted with the staff, visit the classes, laboratories and clinics and follow the staff members on ward walks. This will prove a real vacation and a profitable one. Ideas long dormant will be awakened and new ones acquired. There will be the feeling of good fellowship, of acquaintanceship and a common purpose, and the practitioner is bound to return to his field of labor broader, more capable and more valuable to his patients. Visits of this kind will serve to orient the practitioner in his evaluation of diagnostic and therapeutic procedures. He will be less constrained to accept new ideas at 100 per cent. and more loath to give up older procedures of proven clinical value.

Ohio State Medical Journal, Columbus

August, 1921, **17**, No. 8

Psychic Element in Anesthesia. J. R. Eastman, Indianapolis.—p. 533.
Obstetrics and Gynecology from Standpoint of General Practitioner. R. Peterson, Ann Arbor, Mich.—p. 538.
Diseases of Pancreas. W. D. Haines, Cincinnati.—p. 542.
Psychoses Accompanying Extraction of Teeth. C. W. Sawyer, Marion.—p. 545.
Treatment of Cataract. H. Smith, Amritsar, Punjab, India.—p. 549.
Etiology, Clinical Diagnosis and Surgical Treatment of Senile Cataract. R. Sattler, Cincinnati.—p. 554.
Practical Points Emphasized in Smith's Technic for Intracapsular Cataract Extraction of Value in Any Method of Senile Cataract Extraction. C. King, Cincinnati.—p. 557.
Comments on and Comparison of Various Methods of Cataract Extraction in Vogue. A. J. Timberman, Columbus.—p. 559.
Treatment After Cataract Operation. J. W. Millette, Dayton.—p. 562.

Pennsylvania Medical Journal, Harrisburg.

July, 1921, **24**, No. 10

*End-Results of Sanatorium Treatment for Tuberculosis. H. R. M. Landis, Philadelphia.—p. 687.
Psychotherapy of Tuberculosis. H. M. Neale, Upper Lehigh.—p. 689.
*Early Appearance of Symptoms of Combined Sclerosis of Spinal Cord and Subsequent Development of Severe Anemia. W. B. Cadwalader, Philadelphia.—p. 692.
Some Practical Aspects of Antenatal Hygiene. E. A. Schumann, Philadelphia.—p. 693.
Some Practical Aspects of Care of a Parturient Woman and Her Child. E. B. Piper, Philadelphia.—p. 697.
Factors in Fetal Mortality. W. H. Glynn, Pittsburgh.—p. 699.
Our Legislative Program. F. L. Van Sickle, Harrisburg.—p. 703.
Treatment of Wounds. H. R. Owen, Philadelphia.—p. 705.

End Results of Sanatorium Treatment of Tuberculosis.—Given the type of case which offers a chance of being

improved, Landis thinks it can be said safely that the well conducted sanatorium does all that has been claimed for it. Can the ultimate results be improved? This can be accomplished only by a well organized follow-up system. There is no doubt that patients, whether from a private or a free institution, are prone to neglect consulting anyone once they have been discharged. Those of the working classes, especially, should be urged to report to a dispensary or their physician at once on their return home, in order that their present condition may be noted. They should be visited by a nurse and they should report at the dispensary at certain stated intervals. For the great majority constant supervision and the constant reiteration of the rules of right living are essential. Follow-up work is done but, in too many instances, it is perfunctory and consists of little more than a report of conditions with little or nothing done to remove unfavorable conditions or to maintain the discipline needed to keep the patient well. Furthermore, there is often a considerable amount of social service work necessary. All this means that there must be an efficient corps of nurses maintained. For the most part this is not possible for the sanatorium, but must be carried out by the particular community to which the patient belongs.

Sclerosis of Spinal Cord and Anemia.—In the majority of cases of pernicious anemia, Cadwalader says, the spinal cord is affected. The evidences of such involvement are, however, so often entirely overshadowed by the severity of the symptoms of anemia as to be overlooked. Owing to the striking regularity and constancy in the development of the symptoms of spinal cord involvement the clinical diagnosis can be made with great accuracy, for in the combined sclerosis of the spinal cord associated with anemia the degeneration affects particularly the posterior columns. It appears first in the long fibers of the posterior, or Goll's, columns, and in the parts adjacent to Burdach's columns. In consequence, in the earliest stages of the disease deep sensation alone—more particularly bone sensation and the sense of muscular position—is disturbed. Because of the involvement of the lateral columns the tendon reflexes may be exaggerated. Cadwalader asserts that so far as is now known, this classic type of combined sclerosis does not occur in association with any form of anemia other than that of the pernicious type, although it has been described as occurring in rare cases with gastric carcinoma and in Addison's disease. The actual exciting cause of pernicious anemia has not as yet been discovered, but the occurrence of spinal cord disease without the concomitant anemia would seem to Cadwalader to indicate that, when it does develop, the anemia is merely the most conspicuous feature of a disease that affects the spinal cord as well as the blood-forming tissues. It is certainly incorrect to attribute the spinal changes to the anemia alone, i.e., using the term anemia to indicate quantitative alterations in the blood elements. There can be no doubt, however, that the constant localization of the lesions to certain areas of the spinal cord is not brought about in a haphazard fashion during the course of a general disease.

Southern Medical Journal, Birmingham, Ala.

August, 1921, **14**, No. 8

*Chronic Myocarditis and Its Management. H. A. Christian, Boston.—p. 587.
Treatment of Neurosyphilis. A. Keidel, Baltimore.—p. 595
Gastric Lavage and Proper Medicaments Therein. G. M. Niles, Atlanta, Ga.—p. 601.
Preventive Pediatrics in the South. W. L. Funkhouser, Atlanta, Ga.—p. 606.
Roentgen-Ray Diagnosis of Gastric and Duodenal Lesions. L. J. Menville, New Orleans.—p. 609.
Cancer of Stomach. J. T. McKinney, Roanoke, Va.—p. 613.
Kondoleon Operation for Elephantiasis: Report of End Results. W. E. Sistrunk, Rochester, Minn.—p. 619.
Hernia: Traumatic and Strangulated. S. O. Black, Spartanburg, S. C.—p. 625.
Clinical Observations in Orthopedic Surgery. F. W. Carruthers, Little Rock, Ark.
Internal Derangements of Knee Joint. R. W. Billington, Nashville, Tenn.—p. 631.
Enucleation of Eye with Glass Ball Implantation. J. B. Stanford, Memphis, Tenn.—p. 637.
Searcy Tonsillectome. H. B. Searcy, Tuscaloosa, Ala.—p. 639.
Educational Preparation for Medicine. R. Wilson, Charleston, S. C.—p. 640.
Value of Laboratory to Medical Teaching. H. E. Tuley, Louisville, Ky.—p. 645.
Graduate Medical Education in South. J. S. McLester, Birmingham, Ala.—p. 648.
Postgraduate Teaching in South, with Especial Reference to Condisions at Tulane University. A. Eustis, New Orleans.—p. 649.

Chronic Myocarditis.—Treatment in chronic myocarditis, Christian says, as a rule, is very satisfactory. There are three main reliances: rest, digitalis and diuretics. Rest must be real and maintained. Comfortably in bed is the first recommendation. This means a properly arranged back rest on which the patient can sleep satisfactorily while still propped up at the most comfortable angle. Morphin frequently is of inestimable value in attaining rest, particularly in the first night of treatment. Eating, bowel movements, bathing, all need to be reduced to the lowest possible minimum of exertion. Digitalis in this group of cases is capable of accomplishing wonders up to the time the heart muscle becomes unable to respond further. There is but one essential in digitalis therapy; know what the results are that you should get and give sufficient of the drug to produce these results. The exact dosage depends on the potency of the drug used. It is immaterial what method of giving digitalis is followed. The end result is the same. For the waterlogged cardiac, a diuretic causes prompt diuresis. Christian gets best results with theophylin and almost as good with theobromin sodiosalicylate. The best way to use them is to give them after two days of digitalis therapy in two doses, one early in the morning and the other at noontime; of theophyllin, 0.2 gm., or 3 grains, or of theobromin sodiosalicylate, 0.5 gm., or 7.5 grains, and repeated on the third day if necessary. If the edema is, in the main, cardiac in origin, the diuresis occurs; if it is mainly renal in origin, no diuresis results. It is inadvisable to give diuretics continuously; better results follow intermittent dosage. Vigorous catharsis should be omitted from the treatment. Diet should be simple, easily chewed and digestible. Fluids should be moderately restricted. The total intake of food should be moderate. There is no need for any special form of diet or for any particular types of dietary restriction. The guiding signs for the treatment of chronic myocarditis lie mainly in the effects on symptoms and on edema, pulse and respiration. Little change, except slowing in rate, will be noted in the heart. Physical examination of the heart is the least important thing in guiding treatment of a cardiac case. A course of treatment should not be ended until the patient is free from edema in his legs, over his sacrum and at the bases of his lungs. Until then he needs the judicious mingling of rest and digitalis. Often it is advisable to prolong digitalis treatment for many weeks by continuing small doses after a definite digitalis effect has been obtained from larger doses.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Edinburgh Medical Journal

July, 1921, **27**, No. 1

*Chronic Arsenic Poisoning. R. Stockman.—p. 1.
"Cardiospasm." Congenital Narrowing of Esophagus and Esophagectasia. D. M. Greig.—p. 11.
*Mesenteric Lymphadenitis Simulating Appendicitis. J. W. Struthers.—p. 22.
Further Experience of Conduct of Labor Under "Twilight Sleep." F. W. N. Haultain.—p. 27.
Notes on Wassermann Reaction. W. J. Tulloch.—p. 34.

Chronic Arsenic Poisoning.—Stockman claims that the administration of arsenic compounds may be safely continued for a considerable period after pigmentation of the skin and keratosis have developed. If slight, these clear off rapidly after the administration is stopped, and seem to leave no ill effects. Very deep pigmentation may be permanent, and in a few cases the development of cancer has been noted, apparently following on local irritation. On the other hand, its administration should be stopped at once as soon as the slightest signs of neuritis appear. The lesion is always tedious and troublesome to get rid of, and in some cases is permanent.

Mesenteric Lymphadenitis Simulating Appendicitis.—Cases are recorded by Struthers which show that an inflammatory reaction occurs in enlarged mesenteric glands and the overlying peritoneum, the enlargement being usually but not always tuberculous, which gives rise to symptoms closely resembling appendicitis. While the cause of the reaction cannot be precisely determined, it may be due to exacerbation of the tuberculous infection with periadenitis, to the invasion of tuberculous glands by other organisms, i. e., to the onset of a mixed infection, or to the occurrence of a transient adenitis similar to that seen in other parts of the body in association with surface infections. From the evidence presented, Struthers is inclined to think that most cases are probably due to a reaction provoked by extension of the tuberculous infection. In any event, the affection is a common one and should always be borne in mind in examining young patients presenting signs suggestive of appendicitis.

August, 1921, **27**, No. 2

*Rib Pressure and the Brachial Plexus. E. Bramwell and H. B. Dykes.—p. 65.
"Cardiospasm," Congenital Narrowing of Esophagus and Esophagectasia. D. M. Greig, Edinburgh.—p. 89.
Pride of Blood. P. A. Lewis, Philadelphia, Pa.—p. 100.

Rib Pressure Causing Brachial Plexus Paralysis.—The question of brachial plexus palsies due to rib pressure is discussed by Bramwell and Dykes and eight cases are selected from twenty-three cases to illustrate the points made. Cervical ribs were present in few of the cases. Pressure symptoms referred to the brachial plexus may be caused by a cervical rib, by a rudimentary first dorsal rib, or by a normal first dorsal rib. The greater frequency with which symptoms of rib pressure are observed in the female as compared with the male sex is striking. The age at which symptoms appear is of interest. Thus, in twenty cases the average age was 22. Posture, and notably confinement to bed, is a factor of importance. Thus, two patients first developed symptoms while in bed after an operation for appendicitis, one during an attack of influenza, one while ill with diphtheria, one after a confinement, one after sitting in a dentist's chair for a couple of hours, while two attributed their symptoms to carrying a young baby. Debility, anemia, loss of weight and general ill-health undoubtedly play a rôle in certain instances, while trauma has been the obvious determining cause in some cases. The nervous symptoms due to rib pressure are commonly referred to the first dorsal root, the eighth cervical root, or the lowest cord of the brachial plexus. Exceptionally, however, symptoms referable to a higher level have been observed. Pain referred to the inner side of the forearm is the symptom for which advice is most often sought. Subjunctive sensations, such as tingling, numbness, and "pins and needles" in the finger-tips, and particularly a feeling of coldness in the hand, are of frequent occurrence and are sometimes observed in cases in which there is no complaint of pain. No objective sensory disturbance may be detected, although very usually some sensory loss, which corresponds more or less to a root distribution, is present, and it is, as a rule, of a dissociated character, tactile sensibility being less affected than painful and thermal sensibility. The sensory impairment, when present, is most commonly situated along the inner side of the forearm, while the little and ring fingers are usually involved; in rare cases the anesthesia is limited to the hand. Although sensory symptoms may be alone complained of in many cases, motor symptoms are also observed, while exceptionally the patient complains of motor weakness only. Vasomotor changes, blueness and coldness of the nails, are met with in a small proportion of cases. Cases of rib pressure in which the symptoms are not pronounced may sometimes be materially benefited by attention to the general health, and do not call for surgical treatment. When pain, occurring from time to time, is alone complained of, this symptom can usually be relieved by a sling which supports the elbow, while a blister above the clavicle may be helpful. When pain due to rib pressure is so severe as to cause constant annoyance, or when pain or muscular weakness, or both are producing such inconvenience as to interfere with the patient's occupation, surgical intervention is indicated. The results of operative treatment in those cases in which pain is the prominent symptom are most satisfactory for the pain is usually completely relieved.

Glasgow Medical Journal

July, 1921, **96**, No. 1

Lethargic Encephalitis. M. Manson.—p. 1.
Ophthalmology in Modern Medical Practice. A. F. Fergus.—p. 28.

Indian Medical Gazette, Calcutta

June, 1921, **56**, No. 6

Statistics of Treatment of Cholera. F. P. Mackie and J. C. Gupta.—p. 201.
*Treatment of Malarial Fever in Individuals Susceptible to Attacks of Black Water Fever by Intravenous Injection of an Antihemolytic Quinin Solution. U. N. Brahmachari.—p. 203.
*Treatment of Erysipelas. F. J. W. Porter.—p. 205.
Physiologic Standardization of Digitalis: Method Suitable for Use in India. G. Tate.—p. 205.
Poison of Scolopendridae: Special Reference to Andaman Species. A. Bayley-DeCastro.—p. 207.
Radical Cure of Hydrocele by Plication and Overlapping of Tunica Vaginalis. K. K. Chatterji.—p. 209.
Practical Side of Cheap, Efficient Incineration. J. M. Pereira.—p. 211.
Case of Herpes Zoster Ophthalmicus. S. K. Ganguly.—p. 211.
Notes on 2,412 Eye Operations Performed in a Month at Shilarpur, Sind, in January and February, 1921. B. T. Holland.—p. 212.
Pathology of Ringworm and Allied Skin Diseases. A. N. Srivastava.—p. 213.
Case of Cerebral Abscess. O. A. R. Berkeley-Hill and P. Chandra.—p. 214.
Successful Operation of Bilateral Tumors of Abdomen. E. Millicanokhan.—p. 216.
An Undiagnosed Case of Hepatic Enlargement. N. S. Narasinhan.—p. 217.
Short Notes on Two Cases of Snake-Bite, Echis Carcinata (Phoorsa). R. S. Tembe.—p. 218.
Some Interesting Eye Cases. S. K. Ganguly.—p. 218.

Treatment of Malaria by Intravenous Injection of Antihemolytic Quinin Solution.—The solution of alkaloidal quinin which Brahmachari uses in his cases is said to possess very marked antihemolytic properties: Quinin alkaloid, 5 grains; alcohol, 50 minims; urethane, 3 grains; calcium chlorid, 7.5 grains; glucose, 300 grains; physiologic sodium chlorid solution; 200 c.c. 85 per cent. solution of sodium chlorid in distilled water. This solution is alkaline in reaction and is very well borne by malarial patients. Given intravenously, it does not lead to such profound fall of systolic blood pressure as is observed in the case of quinin bihydrochlorid. Circulatory disturbances are less marked. Ten c.c. of the solution (= ¼ grain of the quinin alkaloid) given intravenously into rabbits weighing from 450 to 470 gm. did not produce any ill effect. This will correspond nearly to giving 1,200 c.c. of the solution to a man of average weight.

Phenol Treatment of Erysipelas.—Porter paints the entire surface of the involved area with 95 per cent. pure phenol on a cotton-wool swab and extending half an inch into apparently healthy skin. It is left on until the purplish area of the inflamed skin is replaced by a complete whitening of the skin. The whitening must not be allowed to proceed to complete blanching, and when large areas are involved, only a portion must be painted at one time. The second step consists in going over the blanched area with swabs saturated with methylated spirit. If done thoroughly, the whitened area again becomes pink and the alcohol must be laid on until this is accomplished. Afterward, other areas should be attacked in the same way until the whole operation is completed in one sitting. The subsequent management consists in the application of moist dressing—simple saline or 1 : 20,000 mercuric chlorid.

July, 1921, **56**, No. 7

Relapsing Fever at Meshed, North-East Persia. J. A. Sinton.—p. 241.
Flavine in Ophthalmic Practice. P. Ganguli.—p. 251.
Anal Complex and Its Relation to Delusions of Persecution. O. Berkeley-Hill.—p. 255.
*Enteroptosis and Dropped Kidney: A New Method of Treatment. D. McCay.—p. 256.
Unique Instance of Lead Intoxication. H. V. W. Cox.—p. 257.
Case of Strangulation in a Child of 15 Months. F. J. W. Porter.—p. 258.
Case of Encephalitis Lethargica. P. Ganguli.—p. 259.

Treatment of Enteroptosis.—The treatment employed by McCay consists of absolute rest in bed, the foot of the bed being raised fifteen or eighteen inches high. The shoulders

of the patient are kept low, but the head may be raised to a comfortable position by pillows. Massage of the abdomen is carried out for half an hour twice a day. Massage is also used to the rest of the body and the muscles of the abdomen are improved in tone by exercise. The limb muscles are also kept in good tone by massage and by exercises against resistance. The spinal muscles are exercised by the movement of arching the back. The bowels are kept open by suitable doses of an aperient like cascara evacuant. After the course of rest in bed the patient is fitted with a belt to support the lower abdomen. A flat porous rubber sponge is attached to the inside of the belt. The sponge is cut so as to be thick below and thin above. The lower border of the sponge pad should be just above the pubes. After a month or two the belt can usually be discarded. In cases of pronounced downward displacement of the kidney a crescent shaped kidney pad is fixed to the inside of the belt with a safety pin. McCay reports good results from this treatment.

International Journal of Public Health, Geneva, Switzerland

March-April, 1921, **2**, No. 2

Grancher Institute for the Protection of Childhood from Tuberculosis (Oeuvre Grancher): Its Rôle in Campaign Against Tuberculosis. P. Armand-Delille.—p. 113.
Vaccination and Antivaccination in England. S. Paget.—p. 119.
Industrial Health: Its Value in Public Health Service. E. L. Collis.—p. 123.
Versailles Treaty and Question of Public Health. T. Janiszewski.—p. 140.
Protection of Public Against Syphilis. A. Vernes.—p. 147.
Popular Health Instruction. E. Stuart.—p. 152.

Journal of Laryngology and Otology, Edinburgh

August, 1921, **36**, No. 8

*Diathermy in Inoperable Pharyngeal and Epilaryngeal Malignancy. W. Milligan.—p. 369.
*Paralysis of Vocal Cords Secondary to Malignant Tumor of Mamma. A. L. Turner.—p. 373.
An Intracranial Complication of Chronic Middle Ear Suppuration. F. G. Wrigley.—p. 381.

Diathermy in Malignant Tumors of Pharynx.—Fifty consecutive cases are analyzed in which Milligan employed diathermy as ordinary surgical procedures were contraindicated either from the situation, the extent, or the fixity of the original growths. In all cases the growths were clinically malignant and, in the majority, the malignant nature of the disease was verified by microscopic examination. In the majority of the cases marked relief of urgent symptoms was effected, and, in a limited number, something approaching to a cure resulted.

Paralysis of Vocal Cords Secondary to Breast Cancer.—Pressure on the recurent laryngeal branches of the vagus as the result of glandular enlargement consequent on malignant tumor of the breast has been noted by Turner in six cases. He believes that if the history of the cases of vocal cord paralysis in women were more carefully inquired into, the sequence might be elicited in a larger proportion of patients, The primary tumor affected the right breast in three and the left breast in three of the cases, and in each instance the breast and the axillary glands of the same side had been removed. One was a case of melanotic sarcoma, and five were cases of scirrhus cancer. The hoarseness developed at varying periods after the removal of the primary growth. In the case of the sarcoma, the symptom was noticed eight months after the breast had been removed. Of the five cases of scirrhus cancer, hoarseness developed at periods varying from two and one-half to five years, the average period in the five cases being three years and six months. In no instance had there been any operative interference on enlarged cervical glands. The right vocal cord was paralyzed in one case (sarcoma of the right breast), while in each of the other five the left vocal cord was observed to be in the cadaveric position. The paralysis was homolateral in four cases—in the case of the right mammary sarcoma, in which the right cord was affected, and in three cases of left mammary scirrhus, in which the left cord was paralyzed. The paralysis was contralateral in two cases of right mammary scirrhus, the left vocal cord being paralyzed in both. In the five cases of scurrhus cancer, the supraclavicular lymphatic glands were found to be secondarily involved at the time of the laryngeal examination; in four instances the enlargement was homolateral, in one it was contralateral. In the case of sarcoma, no enlarged supraclavicular glands were seen, nor could they be palpated.

Practitioner, London

July, 1921, **107**, No. 1

Pleurisy. W. Hale-White.—p. 4.
Fits, Epileptic and Others. A. Feiling.—p. 22.
Significance of Albuminuria. F. G. Chandler.—p. 33.
Cardiology, Old and New: Some Contracts. G. Lambert.—p. 44.
Cardiograph in Diagnosis and Prognosis. I. Harris.—p. 62.
Treatment of Hemorrhoids without Operation. J. Eadie.—p. 66.

Archives de Médecine et de Pharmacie Militaires, Paris

April, 1921, **74**, No. 4

*Bacillary Dysentery. E. Job.—p. 368.
Jaundice and Factitious Jaundice. A. Rolland.—p. 409.

Bacillary Dysentery.—Job has had opportunity to study this disease in Africa and Europe. This experience has confirmed that the anti-Shiga serum has no influence on Flexner dysentery, and that the anti-Flexner serum is ineffectual when dysentery is already installed. It protects only when injected before infection has occurred. Flexner dysentery is mild, and usually subsides spontaneously whether the antiserum is given or not. But the Shiga antiserum has decided therapeutic efficacy. It should be given from the start of the dysentery, as it is impossible to tell at once the form of the disease, while the first forty-eight hours may decide the outcome. Milk is the best food in dysentery, he says, but it is formally contraindicated in simple colitis,. Tentative emetin treatment increases the difficulty of differentiating the true cause, as the parasites disappear from the stools and treatment may be suspended, thus allowing the disease to pass into a chronic phase absolutely refractory to serotherapy, and a dangerous source of contagion. The aspect of the intestine at necropsy in these chronic cases is rather discouraging as to the prospects of direct medication by an appendicostomy or its equivalent.

Archives Médicales Belges, Liége

May, 1921, **74**, No. 5

Surgery with Advanced Cancer. W. S. Bainbridge (New York).—p. 369.
The Cerebrospinal Fluid in Epidemic Encephalitis. A. Dulière.—p. 382.
The Medical Service During Belgian Campaign in German East Africa. A. de Ruddere.—p. 387.
Progress in Neuropsychiatry in 1920. H. Hoven.—p. 400.

Bulletin de l'Académie de Médecine, Paris

July 5, 1921, **86**, No. 27

Solomon's Radiologic Ionometer. Béclère.—p. 3.
Plague at Marseilles, 1721. E. Boinet.—p. 10.
*Pathogenesis of Exostoses. G. LaLrdennois and M. Nassan.—p. 15.
*Clinical Gastrotonometer. R. Gaultier.—p. 16.
*Streptothricosis Simulating Tuberculosis. J. Silhol.—p. 18.

Pathogenesis of Exostoses.—Lardennois and Nathan seek to explain the development of multiple osteogenic exostoses or exostosogenic dyschondroplasia.

Gastrotonometer.—Gaultier insufflates air with the stomach tube and then determines the play of the motor functioning by a water manometer connected with the stomach tube. The insufflated air shows up the shape, the size and the position of the stomach. The amount of air the stomach can hold without pain allows an estimate of its capacity. The fluctuation of the manometer column of water reflects the contractions of the stomach wall, and is thus a gage of its tonicity.

Streptothricosis Simulating Pott's Disease.—The vertebral process in the young man progressed to a fatal termination despite all medical and surgical measures, including courses of iodid. The diagnosis had been Pott's disease with an abscess in the right hip.

July 12, 1921, **86**, No. 28

Epidemic Encephalitis and Pregnancy. G. Marinesco.—p. 34.
*Four Thieves' Vinegar. E. Boinet.—p. 40.
Benefit from Autoserotherapy in Cancer. H. Gaudier.—p. 41.
*Deep Breathing in Treatment of Toxic Vomiting. J. Pescher.—p. 43.

"Four Thieves' Vinegar."—Boinet recalls that just 200 years ago, when the plague swept away 50,000 of the 80,000 inhabitants of Marseilles, a certain aromatic vinegar was officially advised for external use as a preventive of the plague. The recipe for it was posted on the walls. It must have owed what efficacy it displayed to its odor repelling lice.

Breathing Treatment of Neurotoxic Vomiting.—Pescher declares that many nervous women have got out of the habit of breathing enough air into their lungs. Some fright or worry or other cause has checked the functioning of the centers in the medulla oblongata, and when they are tested with the spirometer, it is seen that they are using only about a fifth of their actual vital capacity. As their blood is not getting properly oxygenated, toxic waste accumulates, and uncontrollable vomiting may result if the woman is pregnant, or even in the nonpregnant. The spirometer is particularly useful for training in proper breathing, as the subject can watch her progress by the amount of water she can displace from the jar. He describes a few cases of neurotoxic vomiting treated by this intensified ventilation of the lungs, with constant and permanent success. He explains that the ahematosia, as he calls it, resulting from this inadequate oxygenation of the blood, is to the lungs what asystolia is to the heart. Whole zones of the lungs, incapable of functioning, have to be trained to do their proper work once more, and the spiroscope or its equivalent is the simplest, most convenient, and most effectual method for this.

Bulletin Médical, Paris

July 9, 1921, **35**, No. 28

*Diphtheric Paralysis. C. Achard.—p. 567.

Generalized Diphtheric Paralysis.—As the diphtheria had not been recognized in either of Achard's two cases, the differential diagnosis of the paralysis was puzzling. The clue was given by the symptoms suggesting paralysis of the velum, which had been the first to attract attention in each case. In the woman of 45 this paralysis of the velum had been noted fifteen days after the sore throat; at the thirtieth day in the man of 28. Both have almost completely recovered under electricity and antitoxin in large and repeated doses.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 1, 1921, **45**, No. 23

*Cleidocranial Dysostosis. Crouzon and Bouttier.—p. 972.
Monoplegic Parkinsonian Syndrome After Epidemic Encephalitis. P. Sainton and E. Schulmann.—p. 983.
*Incipient Leontiasis in Child. E. Apert and F. Bordet.—p. 986.
*Test Digestion Hemoclasis. P. Pagniez and A. Plichet.—p. 988.
Meningeal Reaction in Diphtheric Paralysis. P. Merklen, M. Weiss and L. de Gennes.—p. 990. Idem. J. Haguenau.—p. 996.
*Dangers of Therapeutic Colloidal Shock. Glatard.—p. 998.
Meningococcus Septicemia. Bourges, Rouiller and Jobard.—p. 1000.
Hemiplegia After Lumbar Puncture, the seventieth Day of Epidemic Encephalitis. A. Netter.—p. 1006.
The Peripheral Venous Tension. M. Villaret, F. Saint Girons and Grellety Bosviel.—p. 1013.
Calcium Chlorid in Treatment of Diarrhea and Vomiting. Rist, Ameuille and Ravina.—p. 1016.
Leukemia Plus Tuberculosis. P. Emile-Weil and Coste.—p. 1019.

Cleidocranial-Pelvic Dysostosis.—The young man presents a typical case of absence of the clavicles, and the pelvic bones are likewise partially absent, and for two years there have been occasional epileptic seizures. No other instance is known in the family. Villaret in 1905 could find only twenty-eight cases on record.

Leontiasis Ossea.—In the child of 9 the hypertrophy of the bones had begun at the age of 5, the upper jaws affected first. There is nothing to suggest syphilis in the family, but a tentative course of arsphenamin has been begun as yaws, which also induces nasal osteitis, is amenable to the arsenicals.

Modifications of Digestion Hemoclasis.—Pagniez and Plichet state that the hemoclasis which develops in some cases after ingestion of 200 c.c. of milk is modified by the mode of ingestion. The pronounced leukopenia which follows the drinking of the glassful at one time does not occur if ten minutes are taken to sip the milk. One healthy man of 32 who had jaundice in 1914, had a drop of 2,000 or 2,400 in the number of leukocytes each time he drank a glass of milk at one time. When he sipped it slowly there was no drop but an increase of 1,700 in the leukocyte count. In another man, a syphilitic, the drop was 3,500 when the milk was drunk at once, while there was no drop but a rise of 1,000 when it was slowly sipped. It seems plausible to assume that the first swallows of the milk had a protecting action—actual skeptophylaxis—warding off the hemoclasis response in some of the cases, but not in all. These experiences confirm anew the evils of bolting one's food. The difference is sufficient actually to modify the composition of the blood.

Dangers of Colloidal Metals in Typhoid.—Glatard has treated ninety-four typhoid or paratyphoid patients with colloidal metals by the vein. In 19 per cent. there were hemorrhagic complications while in 379 cases not treated in this way hemorrhage occurred only in 7.3 per cent. Favorable results were inconstant and collapse occasionally occurred.

Encéphale, Paris

June, 1921, **16**, No. 6

*The External Arcuate Fibers. C. Winkler.—p. 273.
Reaction of Meninges to Tuberculosis. E. Flatau and N. Zilberlast-Zand.—p. 283. Cont'd.
Pathologic Anatomy of Pineal Gland. Laignel-Lavastine.—p. 289. Cont'n.
*Static Activity of Muscle. R. Mourgue.—p. 297.
*Suicide and Homicide Obsession Impulse. A. Barbé.—p. 304.
Self-Mutilation by Boy of Twelve. Jeanselme and Schulmann.—p. 310.
Schizophrenia. E. Minkowski.—p. 314. Cont'n.

Anatomy of the Arcuate Fibers.—Winkler gives plates of the aberrant system of the external arcuate fibers.

Static Activity of Muscle.—Mourgue reviews the history of this conception.

Homicidal Obsession Impulse.—Barbé gives a detailed account of a case with both suicidal and homicidal obsession impulses in a man of 25.

Journal de Médecine de Bordeaux

July 10, 1921, **92**, No. 13

Test Digestion Hemoclasis. P. Mauriac.—p. 373.
*Nystagmus and Nystagmiform Movements. C. Lafon.—p. 374.
*Anomalies of the Radial Artery. R. Villar and Pacreau.—p. 376.

Nystagmus.—Lafon's analysis of nystagmus and nystagmiform movements confirms that true nystagmus is a static disturbance of one of the elementary functions of direction. Nystagmiform jerking, on the other hand, is a symptom of kinetic disturbance, paretic or spastic, in some psychomotor function or in the peripheral motor oculi innervation.

Anomalies of the Radial Artery.—Villar and Pacreau enumerate seven kinds of anomalies that may be encountered in the radial artery, from the complete absence of the artery in the region examined for the pulse, to chronic inflammatory processes, sclerosis or embolism, or duplication of the artery. The possibility of such anomalies imposes the necessity for examining another artery when the pulse cannot be duly palpated, instead of assuming that the heart must inevitably be at fault.

Journal de Radiologie et d'Electrologie, Paris

June, 1921, **5**, No. 6

Clinical Study with Radiography of Pleuropulmonary Cancer. F. Barjon.—p. 241.
Differential Diagnosis of Calcareous Concretions in Lung. Darcourt and Garcin.—p. 249.
Movable Abdominal Calcareous Concretions. Douarre.—p. 253.
Radiology of Appendix in Chronic Appendicitis. Jaisson.—p. 256.
Decongestive Action of Electricity. J. Laborderie.—p. 264.
Universal Apparatus for Radium Therapy. Baud and Mallet.—p. 271.

Paris Médical

July 2, 1921, **11**, No. 27

*Heart Disease in 1921. P. Lereboullet and J. Heitz.—p. 1.
*High Blood Pressure. Vaquez and Leconte.—p. 11.
*Acute Rheumatismal Endocarditis in Children. Nobécourt.—p. 18.
*Acute Isolated and Nonrheumatismal Aortic Insufficiency. L. Gallavardin.—p. 23.
*Treatment of Obliteration of Artery. R. Leriche and A. Policard.—p. 27.

Heart Disease in 1921.—Lereboullet and Heitz remark that the more we study the pathology of the heart and vessels, the greater our appreciation of the progress in late years in the methods of exploration. They describe the more recent acquisitions in this line, and review a long list of new symptoms of heart disease and their interpretation. They discuss

recent literature on quinin and quinidin in treatment of arrhythmias; benzyl benzoate with high blood pressure, and periarterial sympathectomy in treatment of a tendency to gangrene. In conclusion they cite Sicard's success in treating varicose veins with intravenous injection of 10 c.c. of a 10 per cent. solution of sodium carbonate.

The Past, the Present and the Future of Patients with High Blood Pressure.—Vaquez and Leconte analyze their experience with over 1,000 cases of high blood pressure during twenty years. Over two thirds were men, and all were over 18. Among the facts thus brought out is the prognostic importance of the water test. When the elimination of water after test ingestion was retarded, all in this group died within a few months to a year, or their condition had grown worse during the one to three years afterward; only one failed to show any aggravation. In the group with normal response (twenty-three out of the forty tested), there has been no aggravation during the year since except that two have died from cerebral lesions; the others have had no disturbance from this cause during the several years to date. This induced diuresis test is the more instructive as it is independent of albuminuria and azotemia. The high blood pressure at the menopause or with fibromas or after ovariotomy is remarkably benign, and often subsides spontaneously. As the prognosis depends in general on the state of the heart, the symptoms from failing compensation are especially baneful, particularly the permanent acceleration of the pulse (ninety-three cases) as a sign that the left ventricle has become unequal to its task; or sporadic or bunched extrasystoles (141); gallop sound (121); functional mitral insufficiency (153), and finally total arrhythmia. The latter was evident in forty-four cases in which since that time the blood pressure has returned to normal. The retrospective diagnosis in this latter group was confirmed by radioscopy, which is always useful in cardiovascular cases.

Rheumatismal Pericarditis in Children.—Nobécourt's charts show the findings that may be anticipated when febrile rheumatism induces pericardial effusion or dilatation of the heart. The symptoms are alike with both, only that Abram's heart reflex persists with dilatation and disappears with pericarditis. Displacement of the precordial shock and of the maximum of the first sound is likewise significant.

Nonrheumatismal Aortic Insufficiency.—Gallavardin reports seven cases of this kind with necropsy in two. The lack of any history of rheumatism may mislead to assumption of syphilis.

Treatment of Obliteration of Arteries.—Leriche and Policard commend resection of the obliterated segment of the artery after a traumatism, restoring the normal passage by a suture or graft. This does not apply to obliteration from ischemic retraction of the Volkmann type. This requires usually an operation on tendons or bone. In a third group the obliteration is a vasomotor disturbance from injury of nerves at the seat of the trauma. The proper treatment here is resection of the pathologic zone, restoring the course of the artery anew, in sound tissue.

Presse Médicale, Paris

July 9, 1921, **29**, No. 55

*Stomach-Gallbladder Crises. Enriquez, M. E. Binet and Gaston-Durand.—p. 541.
*Anatomy of the Sympathetic Nervous System. P. Desfosses.—p. 543.
*Autoserotherapy in Gonococcus Epididymitis. G. Weill.—p. 544.
The Newer Derivatives of Quinin. L. Cheinisse.—p. 545.

Stomach-Gallbladder Crises.—Of all the viscera, the stomach is the one that participates most in the pathology of other viscera, and especially, of the biliary apparatus. A reflex cramp in the pylorus may be traceable to this cause. In the typical cases it develops from two to four hours after a meal, the pain coming on suddenly and severe, and lasting for a shorter or longer time. In such a case, the personal and the family history should be investigated for similar attacks, especially in the female line, for gout, gallstones, migraine, or jaundice. Families are known with such a history through four generations, while gastric ulcer is an individual, an autogenous affection. A history of diarrhea alternating with constipation, especially diarrhea after meals, suggests a biliary origin rather than ulcer. Nausea on waking and sensations like those of seasickness are characteristic of irritation of the peritoneum around the inflamed gallbladder or appendix. The attack of pain in the stomach is usually accompanied by a slight rise of temperature, and there may even be slight chilliness to start with. The neglect to use the thermometer is the reason why fever is not noted more commonly with these gastric crises for which the inflamed gallbladder is responsible. Bile pigments may also be found in the urine. In about two thirds of the cases these attacks develop at night, and the pain is more severe than ulcer pains.

The nonrecognition of the true cause of the pains leads to treatment on a false basis, which does actual harm for various reasons and postpones the effectual treatment. This should be to promote the flow of bile, preferably with alkaline waters, or surgical measures. Pressure on the gallbladder may induce nausea. Pressure along a line upward from a point midway between the umbilicus and the ninth right costal cartilage is painful with gallbladder disease, while pressure along a line downward does not elicit pain. With duodenal ulcer, the reverse occurs. Hypo-acidity is the rule in the dyspepsia secondary to gallbladder disease. Riding in cars or carriage may shake up the body and start an attack, as also eating certain food rich in fat and cholesterin. Eggs seem to be the most noxious in this respect. A single egg or dish containing it is liable to bring on an attack. Menstruation and pregnancy are accompanied by cholesterinemia, and it is precisely during these periods of strain that these crises are liable to develop. In 1,286 cases of gallstone disease, the influence of menstruation on the development of the attacks was manifest in 1,037 cases. The pains in the stomach, the recurring "indigestion" during the menstrual period, had been ascribed to pelvic influences until jaundice or gallstone colic cleared up the diagnosis. In 50 per cent. of the cases the gastrovesical crises appeared two or three days before the menstrual period, and subsided as the latter became installed. Pain in the stomach preceding or accompanying the menstrual period always calls for investigation of the gallbladder and search for gallstones.

The Sympathetic System.—Desfosses analyzes the general anatomy of the sympathetic nervous system according to the latest research.

Autoserotherapy in Gonococcus Epididymitis.—Weill found that the symptoms subsided completely or nearly completely in three cases described in detail in which he reinjected the patient with the serous fluid from the hydrocele. There was no reaction, and the therapeutic effect seemed proportional to the amount injected. Injection of the fluid into other patients proved effectual also, although to a less extent. He calls this plasmotherapy.

Progrès Médical, Paris

July 2, 1921, **36**, No. 27

*Action of Actinic Rays. T. Kagawa.—p. 311.
A Peptic Ferment in the Spinal Fluid. Loeper et al.—p. 318.
Nephrolithiasis and Mineral Waters. H. Paillard.—p. 320.

Action of Actinic Rays.—Kagawa discusses the mechanism responsible for the inactivation of complement by the ultraviolet rays.

July 9, 1921, **36**, No. 28

*Traumatism of the Skull. H. Billet.—p. 323.
*Exhibitionism of Sentiment. Laignel-Lavastine.—p. 326.

Traumatism of the Skull.—When the skull has been fractured by the trauma, surgical measures are imperative, Billet explains. But when the lesion is a simple trauma, the skull not opened, the treatment differs with each case. The mild injuries heal of themselves, as also simple concussion of the brain. In the grave cases, the effects of lumbar puncture are often illuminating. If the condition then grows worse he advises to trephine without delay, but otherwise not.

Sentimental Exhibitionism.—Laignel-Lavastine applies this term to the adoration experienced by certain overemotional psychasthenic girls for their physician. They are like clinging vines in their weakness, and display actual exhibitionism in lavishing their sentiment on him. He describes some typical cases, saying that the instinct impelling thereto is that of self-preservation, not a genital impulse. The physician must aim to train the will and supply moral support, and

he must not let his pride or his vanity lead him to accept the expressions of devotion which in reality are merely a manifestation of the instinct for self-preservation. He quotes Janet to the effect that the patient's sentimental affection is only the expression of her weakness, and a change to ingratitude is the best evidence of her recovery. The physician is for her in her weakness like the banisters on a staircase.

Schweizer Archiv f. Neurol. u. Psychiatrie, Zurich

1921, **8**, No. 2

*Internal Secretion and the Nervous System. W. Löffler.—p. 163.
*Posttraumatic Persisting Headache. R. Benon and B. Kerbrat.—p. 184.
*Treatment of Schizophrenia. A. Repond.—p. 190.
*Pathology of the Pituitary. P. v. Monakow.—p. 200.
*Pathology of the Thymus. E. Bircher.—p. 208.
*The Cerebrospinal Fluid. L. Stern.—p. 215. Idem. C. v. Monakow.—p. 233.
*Epidemic Encephalitis. G. Piotrowski.—p. 235. C. v. Monakow.—p. 257. Cont'd.

Internal Secretion and the Nervous System.—Löffler comments on the way in which study of the internal secretions has thrown light on the reciprocal dynamic relations between the nervous system and metabolism, and between the nervous system and the cardiovascular system. Even mental processes are conditioned in part by processes of internal secretion, and these in turn reflect the influence of psychic processes. The great unifying principle of the internal secretions, he says, forms a band uniting the various branches of medicine, and it is impossible to overestimate the value of such a band in these days when everything seems to tend to drive the various disciplines farther apart. One of the most convincing data cited is that stimulation of the splanchnic nerves in animals does not have much effect on blood pressure if the efferent veins from the suprarenals are clamped, while the blood pressure rapidly rises if the veins are left open. Puncture of the fourth ventricle has no action likewise if the efferent suprarenal veins are clamped. This hormone secreted by the suprarenal, he remarks, is the only organ-specific endocrine substance chemically isolated as yet. The low pressure common in Addison's disease and the extreme sensitiveness to epinephrin of patients with this disease are well established facts, as also the disappearance of the lipoids in the suprarenals in affections with much muscular strain, as in clonic convulsions, psychomotor agitation and in certain infections. Steinach's experiments have confirmed with even stronger testimony Brown-Séquard's assertions in regard to the potency of the internal secretion of the testicles. As Steinach ligates the vasa deferentia, or as a testicle is transplanted, the retention of the products of the secretion allows more of it to get into the blood and thus act on the nervous system. The sensation of rejuvenation is thus evoked by this erotization of the central nervous system.

Posttraumatic Headache.—Benon and Kerbrat describe the special features of this tenacious cephalalgic syndrome, and means to distinguish this psychoneuropathic syndrome from traumatic chronic asthenia, abortive traumatic dementia, etc. Three cases are described; the condition seems to be practically stationary in each.

Treatment of Schizophrenia.—Repond refers to institutional treatment, saying that the results of treatment are more direct and effectual in this than in any other mental disease. In the majority of cases, appropriate treatment will restore the patient to ordinary life. He adds that for this the physician must not shrink from combating certain prejudices and shouldering certain responsibilities which his skill will enable him to attenuate in large measure. This includes restoring the patient to his family. He has done this several times even against the wishes of the parents, but the success in a number of such cases has justified his action. An actual resurrection followed in some cases, the patient becoming capable of self-support, in part at least, under a little supervision and attention.

Pathology of the Pituitary.—Monakow's illustration shows the almost completely shriveled hypophysis in a man of 58 with obesity, of the pituitary insufficiency type, and tuberculosis, with extreme apathy and oliguria. Necropsy revealed further degeneration of the convoluted tubules in the kidney, the findings exactly similar to those in a previous case of injury of the pituitary. This confirms the relation between the pituitary and the kidneys.

Pathology of the Thymus.—Bircher describes eight cases in children in which thymectomy was followed by disturbances in growth. The ossification centers and the growth in height showed abnormal conditions. These experiences warn against thymectomy in children, and also against roentgen-ray treatment of the entire gland.

The Cerebrospinal Fluid.—Stern discusses it from the standpoint of its relations with the blood circulation and with the nervous elements of the cerebrospinal axis. Monakow analyzes the circulation of the cerebrospinal fluid.

Epidemic Encephalitis.—Piotrowski reviews 452 articles that have appeared on this subject.

Schweizerische medizinische Wochenschrift, Basel

July 7, 1921, **51**, No. 27

*Different Forms of Goiters at Basel and Bern. E. Woelz.—p. 625.
Purulent Meningitis; Two Cases; Recovery. H. v. Schulthess.—p. 631.
Mistletoe in Treatment of Hypertonia. J. Tobler.—p. 633.
Teaching of Anatomy in Switzerland. H. Frey.—p. 635. Conc'n.

Different Forms of Goiter in Different Endemic Foci.—Woelz compares 600 operative cases at Basel with 400 at Bern, omitting the malignant cases. Cretinism is rare in Basel; men there are affected with goiter much less frequently than women, and the goiters are more of the diffuse type, and larger.

Annali d'Igiene, Rome

March, 1921, **31**, No. 3

*Pathogenesis of Cholera. IV. G. Sanarelli.—p. 137. Conc'n.
Sero-Agglutination under Influence of Chemicals. M. Gulino.—p. 160.
The Newer Antiseptics. Vittorio Calò.—p. 168.

Pathogenesis of Cholera.—In this fourth article in this series, Sanarelli discusses the peculiar way in which the cholera vibrios are attracted to the stomach and intestines. He further describes the transmission of human cholera to guinea-pigs. The vibrios injected into a vein pass to the mucosa lining the digestive tract and set up lesions there, as in man. But he never succeeded in inducing in the animals the algid phase of cholera.

Annali di Nevrologia, Naples

1921, **38**, No. 1-2

*Symptomatology of Epidemic Encephalitis. S. D'Antona.—p. 1.
Recent Research on Sclerosis in Patches. T. Senise.—p. 65.

Symptomatology of Epidemic Encephalitis.—D'Antona emphasizes among other things the changes in the circulation in this disease, and urges study of the phenomena in the vegetative nervous system during the phase of somnolency.

Clinica Pediatrica, Modena

1921, **3**, No. 3

*Hemoconias in Children. F. Zibordi.—p. 79.
Form of Epidemic Encephalitis. A. Sacchetto.—p. 91.

Hemoconias in Children.—Zibordi queries as to the significance of the hemoconias found inside blood corpuscles in the newly born. There were no further intracorpuscular hemoconias to be found by the twelfth to the twentieth day thereafter. The blood dust is particularly abundant during the period when milk is the only food.

Pediatria, Naples

June 15, 1921, **29**, No. 12

*Test Agglutination in Tuberculosis. R. Kharina-Marinucci.—p. 529.
*Spontaneous Pneumothorax in Infant. E. Schoenstein.—p. 535.
*Epinephrin Test in Children. F. de Angelis.—p. 542.
*Pituitary Test in Children. S. Fabris.—p. 548.

Sero-Agglutination in Tuberculosis in Children.—Fully 95 per cent. of 235 tuberculous children gave a positive response when the test was applied to the avian variety of tubercle bacilli. Agglutination occurred at 1:25 to 1:100 in the majority, but in five at 1:200. The negative responses were in the most incipient or the farthest advanced cases. The titer sometimes grew higher as the child improved, and lower as the disease progressed. The findings confirm those of Di Cristina who first suggested the use of the avian variety for the purpose. The special localization of the tuberculous process did not seem to affect the response.

Spontaneous Pneumothorax in Infant.—The pneumothorax occurred during the course of pneumonia.

Response of Young Children to Epinephrin Test.—Injection of epinephrin in forty-five young children sent the blood pressure up in all except in the three with cardiovascular disease or temporary derangement. The rise averaged 1 to 3 cm. in the systolic pressure and 1 to 2 cm. in the diastolic. The effect became evident in ten minutes and reached its height in thirty minutes, lasting from two and a half to three and a half hours before its gradual disappearance.

Response of Children to Pituitary Test.—Fabris found that injection of pituitary extract (hypophysin) in children from a few months to 12 years old sent the blood pressure up or down in ten or fifteen minutes. The variation was never more than 1 cm. and the effect did not last for more than seventy-five minutes on an average. The diastolic pressure usually returned to its former state before the systolic. The pressure dropped regularly and constantly in the 22 with mitral stenosis, polyuria, pneumonia, kala-azar, tuberculous peritonitis, pleuroperitonitis or lymphatism. The response was invariably a rise in the 15 with scrofula, the exudative diathesis or tuberculous tracheobronchial glands or brain tumor. In the 13 with latent tuberculosis, nephritis or diabetes insipidus, the pressure rose after a preliminary drop.

Archivos de Cardiología y Hematología, Madrid

May, 1921, **2**, No. 5

*Phagocytosis in Pathologic Processes. P. del Río-Hortega and F. Jiménez de Asúa.—p. 161.

Phagocytosis in Pathologic Processes.—Del Río-Hortega and Jiménez de Asúa reproduce eighteen photomicrograms and a colored plate showing phagocytosis in tumors and other pathologic processes. Sometimes the phagocytosis is peculiarly intense in the parenchyma of diseased organs, as also in normal and pathologic lymphoid organs. These macrophages take well the ammoniacal silver carbonate stain, which shows up their varied shapes. No connection between their number and the malignancy of the process could be detected.

Revista Española de Medicina y Cirugía, Barcelona

April, 1921, **4**, No. 34

*Surgical Treatment of Pulmonary Tuberculosis. C. Jaeger.—p. 191.
*Transvesical Prostatectomy. J. M. Reverter.—p. 200.
Diagnosis of Neurosyphilis. B. Rodriguez Arias.—p. 202.

Surgical Treatment of Pulmonary Tuberculosis.—Jaeger describes his impressions from observation of Sauerbruch's surgical cases of pulmonary tuberculosis. Illustrations are given before and after thoracoplasty, the good condition of some of the patients five or six years later confirming that the progressive process had undoubtedly been arrested by the sinking in of the chest wall. Sauerbruch resects only the eleventh to the fifth ribs at first, waiting a month before resecting the fourth to the first, removing from 8 to 10 cm. of each rib. He rejects decidedly all half-way measures of the kind. The whole lung has to collapse to insure the desired effect; otherwise secretions are liable to be aspirated into still sound portions of the lung. The other lung must be intact. He reports 35 per cent. cured of his 381 cases of the kind. The immediate mortality was 2 per cent. and 2 per cent. died within a few weeks. The later series give much more favorable figures than the older ones.

Transvesical Prostatectomy at Two Sittings.—Reverter insists that by operating in two sittings the indications for this treatment can be materially enlarged. Thus we are able to give patients the benefit of this operation when their condition is too grave for a single operation of the kind. A number of minor points to facilitate it are enumerated.

Revista Médica del Uruguay, Montevideo

June, 1921, **24**, No. 6

*The Asthenia Sets of Symptoms. G. N. Martinez.—p. 241.
*Osteomyelitis and Syphilis. F. Rodriguez Gómez.—p. 254.
*Measles at Montevideo. V. Zerbino.—p. 258.

The Asthenias.—Martinez remarks that this group of cases by the insubstantiality of its symptomatology and the invariable failure of ordinary methods of treatment is the heaviest burden of our whole practice. The group includes the cases of neurasthenia, pychasthenia, hysteria and visceral neuroses, all showing more or less disturbance in the functioning of the vegetative nervous system. This is what links them all, and explains their kaleidoscopic occurrence, and gives a hope of effectual treatment by regulating the vegetative nervous system by influencing the endocrine glands. In this condition of neurotonia, the sympathetic or the vagus may predominate transiently or permanently, but the main feature of the whole is the asthenia, asthenia of the nerves and of the muscles. In one case in his practice the youth of 16 was too weak to keep up, and had to stay in bed, as also two other young men. An inherited taint or toxic relics of infectious diseases are common in the etiology, but puberty seems to be the determining factor. Treatment should include general tonic measures and organotherapy. The latter has to be tentative as in this we are at the stage of development corresponding to the era in respect to plant drugs before the discovery of their alkaloids.

Osteomyelitis and Syphilis.—In three cases the acute osteomyelitis developed in a bone already the seat of a syphilitic bone and periosteum process. Rodriguez Gómez in describing the cases says that he has not found this combination mentioned in the literature. Treatment for the syphilis must supplement the usual measures to cure the osteomyelitis, the combination keeping up a vicious circle.

Measles in 1920.—Zerbino relates that the epidemic of measles in 1920 spread rapidly throughout the whole of Uruguay. These epidemics seem to occur there at intervals of three or four years. No breast fed infants under 3 months old were known to develop the disease, and in the older infants it was always mild, while in the artificially fed it was grave and septicemia was common.

Semana Médica, Buenos Aires

May 5, 1921, **28**, No. 18

*Invisible Phases of Protozoa. R. Kraus, R. Dios and J. Oyarzábal.—p. 509.
*Classification of Kidney Disease. H. L. Caretti.—p. 511.
*Two Cases of Cesarean Section. T. J. González.—p. 520.
Topography of the Brain. E. Amato.—p. 523.
*Puerperal Psychoses. J. Giménez Zapiola.—p. 524.

Invisible States of Pathogenic Protozoa.—Kraus and his co-workers report the results of research which confirm Schaudinn's statement that, in certain phases of their development, spirochetes may be so thin that it is impossible to see one alone, and that in this extremely slender form they may pass through porcelain filters. The Buenos Aires experiences confirm this. They experimented with piroplasms and found that sheep injected with blood from cattle containing piroplasms of the species causing the so-called Texas cattle fever did not develop the disease, and the piroplasms could not be detected in their blood. But cattle inoculated with the blood, even months later, became infected, and anaplasms were found in the blood but no piroplasms. Similar experiments with the trypanosomes causing mal de cadera in horses yielded similar results. Sheep inoculated with blood from a horse with this disease showed no trypanosomes in their blood, but guinea-pigs injected with blood from these sheep had trypanosomes in their blood when examined from two weeks to a month later. The trypanosome of surra and the trypanosome of sleeping sickness behaved the same, none of the parasites being discoverable in the blood of the sheep inoculated with blood containing the trypanosomes. At the same time, in the blood of guinea-pigs inoculated with blood from these sheep, the trypanosomes appeared once more. The sheep infested with the invisible form presented no signs of infection, although they transmitted the infection to others. This suggests that certain pathogenic protozoa may be in the habit of infecting other animals besides those with which they are usually linked, but as the invisible form does not induce appreciable symptoms, we overlook these animals in our prophylactic measures. Lignières has recently reported similar experiences encountered in his search for an effectual vaccine.

Classification of Kidney Diseases.—Caretti compares the German classification in the three forms: nephrosis; glomerular nephritis, diffuse or in foci, and arteriosclerosis, with the two forms of kidney disease accepted by the French, namely, the three types of acute nephritis and the four types

of chronic nephritis, the type with albuminuria, with dropsy, with high blood pressure or with uremia. This is simpler, but less exact, as he explains. The nephrosis of the German writers includes some of the French acute nephritis cases, simple albuminuria and dropsical nephritis. The glomerular nephritis of the Germans includes others of the French acute nephritis cases, those with uremia and some of the high blood pressure cases. The renal arteriosclerosis group of the Germans corresponds to the hypertensive, uremigenic nephritis of the French school. The treatment and the prognosis depend on the type of the anatomic lesion and its cause. Specimen cases of each type are described and analyzed.

Cesarean Section.—In one case the fibromatous uterus, the transverse presentation, the scar of a former cesarean section, and the age of the woman, 37, were disturbing features, but she was safely delivered of a living child by a second cesarean section. In the second case, González ascribes the recovery from severe eclampsia to his prompt vaginal cesarean section.

Etiology of Puerperal Psychoses.—Besides the predisposing taint or autointoxication, insufficiency of the liver or of some ductless gland is evidently a factor, and this should be borne in mind in treatment. Thyroid or ovarian treatment should be given a trial; as also in the vomiting of pregnancy.

Grèce Médicale, Athens

May-June, 1921, **22**, No. 5-6

*Recurring Paralysis of the Motor Oculi. J. Bistis.—p. 57.
Deformity of Thumb in Median Paralysis. Condargyris.—p. 58.
Medical Treatment of Gastric Ulcer. P. J. Rondopoulos.—p. 60.

Paralysis of the Motor Oculi Nerve.—The recurring paralysis was preceded by local pains each time. The first attack had been at the age of 12; the young woman seems otherwise healthy. The ptosis lasts from one to several days. The intervals average only a week or two. The pain begins in the temporal region, extends to the brow and the back of the neck, and is generally accompanied with nausea and malaise but has no neuralgic character. In the cases compiled by Mingazzini, the first onset occurred between 10 and 20 in seventeen, between 20 and 30 in eight, and in one case in the sixties.

Mitteilungen a. d. Path. Inst. Univ., Sendai, Japan

May 11, 1921, **1**, No. 2

*The Suprarenal Cortex. Y. Tokumitsu.—p. 161 and p. 211.
*Experimental Toxic Nephritis. T. Suzuki.—p. 225 and p. 243.
*Polynuclear Ganglion Cells. M. Shimoda and M. Kondo.—p. 293.
*Abortive Cerebral Sclerosis. M. Shimoda.—p. 309.
*Giant Cells in Gliomas. O. Kimura.—p. 321.
*Lung Fluke in Brain. O. Kimura.—p. 375.
*Paget's Disease of the Nipple. S. Sekiguchi.—p. 385 and p. 393.

The Suprarenal Cortex.—Tokumitsu describes what he calls a new function of the suprarenal cortex, which becomes manifest when a ligature is thrown around the pancreatic duct. The cortex proliferates and hypertrophies, evidently as a compensating process. The medulla of the suprarenal, on the other hand, seems to have an antagonistic action to that of the pancreas. The medulla and the cortex are separate organs. His research has confirmed that diabetes develops even with slight changes in the pancreas if the suprarenal cortex shows degenerative changes, while otherwise the diabetes develops only with pronounced changes in the pancreas. The article is in German, but is followed by a report, in English, of experimental research on the suprarenal cortex which demonstrated that it is indispensable to life, while the medulla can be removed without comparative harm. The first four articles are in German. Others are in English.

Experimental Toxic Nephritis.—Suzuki reports success in inducing glomerular nephritis in rabbits by intravenous injection of dilute venom from a crotaline snake. In a second article he describes the transformation of the acute nephritis thus induced into a chronic form.

Pathologic Import of Polynuclear Ganglion Cells.—From study of 178 cadavers of the insane and the noninsane, it seems evident that numerous polynuclear cells in the ganglia must be regarded as an imprint left by some fetal developmental disturbance.

Abortive Sclerosis of the Brain.—Shimoda describes a case which seemed from both the clinical and the anatomic standpoint to be one of genuine epilepsy until the discovery of a small focus of sclerosis in the brain.

Giant Cells in Gliomas.—Kimura's two cases show the different types of giant-cell neuroglioma, neuro-epithelioma and tuberous cerebral sclerosis, alone or associated. He gives four pages of bibliography with tabulated details of thirty-eight cases and six fine plates. (In German.)

Lung Fluke Cyst in Brain.—Kimura states that the echinococcus and cysticercus have never been found in the brain in Japan. But there are fifteen cases on record there in which the blood fluke or lung fluke was responsible for the cerebral disease. He describes another case and the differential diagnosis.

Paget's Disease of the Nipple.—Sekiguchi reports another case of mammectomy for this disease, with photomicrograms, and gives ten pages of bibliography and a huge folding table giving the details of all the cases he could find on record.

Mitteil. a. d. Med. Fak. Univ., Tokyo

Dec. 28, 1920, **25**, No. 2

*Tar Sarcoma in Rabbit. K. Yamagiwa, S. Suzuki and K. Murayama.—p. 189.
*Electrocardiography of Heart of Dying Dog and Rabbit. S. Yamada.—p. 197. Cont'd.

Tar Sarcoma.—The fibromyxosarcomatous tumor developed in the mamma of a rabbit twenty-three months after the beginning of the course of thirty-one injections of tar in the mamma. A recurrence developed with metastases after excision of the tumor, and scraps of it proliferated when injected in other rabbits. This was the only positive cancer produced among the 200 rabbits in the tests. (In German.)

Electrocardiography of Dying Heart.—In Yamada's experiments on dogs and rabbits, paralysis of the heart was induced by a wide variety of mechanical causes, by the action of chemicals, drugs, gases, etc., and also by anaphylaxis. The article is in German, and this instalment consists of nearly 200 pages with ten pages of electrocardiograms.

Archiv für Verdauungs-Krankheiten, Berlin

June, 1921, **28**, No. 1-2

*Postoperative Peptic Ulcer. H. Haberer.—p. 1.
*Operative Treatment of Benign Stomach Lesions. L. Schüller.—p. 29.
*Relations Between Cholelithiasis and Duodenal Ulcer. G. Kelling.—p. 63.
*Hyperchlorhydria-Peptic Ulcer. J. González Campo.—p. 69.
*Tenderness to Percussion in Abdominal Disease. W. Bakowski.—p. 103.

Postoperative Peptic Ulcer.—Haberer presents a long array of arguments in favor of applying the principle of the Billroth I method in treatment of gastric and duodenal ulcer, as this alone protects best against peptic ulcer. He says that he has never known or heard of but one case in which it developed after the Billroth I, and this one case is not certain. It is very important further to avoid the use of unabsorbable suture material, and to refrain from unnecessary manipulation and damage of tissues. But even more important is the necessity for care in the diet for long after the operation. The operation does not do away with the predisposition to ulcer production that caused the ulcer in the first place. Disregard of this fact is often solely responsible for peptic ulcer. Among the facts confirming this is the almost invariable site of the peptic ulcer opposite the gastro-enterostomy opening.

He has usually found it possible to train his patients to guide their diet in this way. If a peptic ulcer develops, resection is the only treatment. He thus cured 14 of 17 patients with peptic ulcer, and the operation was not a factor in the fatal outcome in the others. In 5 other cases of peptic ulcer only a palliative, if any, operation was possible. Haberer has operated on the stomach in 1,035 cases, including 699 resections and 71 operations with exclusion of the pylorus according to von Eiselsberg. Not less than 14 of his own 17 peptic ulcer cases were in patients who had been treated by this latter exclusion method. The other 3 were in gastro-enterostomy cases. That is, peptic ulcer developed in 20 per cent. of the 71 exclusion cases and in 1 per cent. of his 265 gastro-enterostomies.

Operative Treatment of Benign Disease of the Stomach.—Schüller warns that tests of the motor function of the stom-

ach are the most important of the indications for operative treatment. Only when the stomach does not empty itself properly will a gastro-enterostomy prove of benefit. The overlooking of this fact is responsible for unsatisfactory results of operative treatment in many cases. Tests of 50 stomachs showed that although the contrast meal was evacuated normally, there was retention of ordinary food, especially when gastric secretion was low and the food imperfectly masticated. He found further that with an ulcer the evacuation often proceeded very differently on different days. The test breakfast does not make enough demands on the stomach for it to be decisive. The cases in which gastro-enterostomy failed to relieve were always those in which the ulcer was not located at the pylorus or not complicated with spasm of the pylorus. For these and other reasons presented, he urges systematic and protracted internal treatment for all forms of nonmalignant disease of the stomach, leaving to the internist the decision as to whether treatment shall be internal or operative. The decision must not be based on the patient's complaints nor on the roentgen picture alone; the progress realized with the roentgen rays is that they reveal hard ulcer, and show when the ulcer is at the pylorus—either of which tends to turn the scale in favor of an operation. Otherwise, clinical observation and deductions are the only criteria now as ever. The only vital indication is with complete stenosis of the pylorus, and recurring small hemorrhages. He protests against the assumption that the mortality from excision and resection is counterbalanced by the mortality from hemorrhage and perforation. The mortality of gastric ulcer under internal measures alone is only 1 per cent. and only 2 per cent. including the cases with grave hemorrhages.

Relations Between Cholelithiasis and Duodenal Ulcer.—Kelling remarks that the passage of infectious agents from the bowel to the liver by way of the venous and lymphatic systems and their elimination through the bile explain the frequent association of cholelithiasis, duodenal ulcer and appendicitis. As the bacteria pass into the intestine in the bile, the peristalsis of the pylorus and duodenum may force the bacteria into the follicles and an abscess develops in consequence, and the action of the hydrochloric acid may transform this abscess into a duodenal ulcer. There are more follicles just below the pylorus than elsewhere in the duodenum, which explains the location of the ulcer at this point, whether the bacteria come from the liver or the stomach. Gastroptosis and cholecystitic adhesion of the duodenum favor the duodenal ulcer as this part of the duodenum is drawn up to the right, a frequent finding with duodenal ulcer and gallbladder disease. With inflammatory processes in the gallbladder, the passage through the duodenum should be facilitated by reclining on the back during digestion; indigestible food, such as chunks of meat and vegetables, should be avoided, and the bile should be rendered fluid with liquid foods, frequent meals, and disinfected with sodium salicylate. Possibly a lack of mineral salt may be a factor. This can be combated best perhaps by ingestion of milk. He found anacidity in 33 per cent. of his gallstone cases, and Rydgaard in 66 per cent. of the bile duct occlusion cases.

Hyperchlorhydria and Peptic Ulcer.—González Campo declares that hyperchlorhydria is identical with ulcer, and that every one with it should be treated as for ulcer. Among the thousands who have consulted him for disease of the digestive tract in his twenty years of specialist practice at Madrid, 66.25 per cent. had hyperchlorhydria. The pains with it are due in fact to a peptic ulceration. The only difference he admits between the clinical picture of hyperchlorhydria and that of true gastric ulcer is that the latter bleeds. He devotes thirty-four pages to arguments sustaining this view.

Tenderness on Tapping with Gastric and Duodenal Ulcer.—There was no pain from percussion in 7 of Bakowski's 16 cases of duodenal ulcer but pressure elicited pain in all but one. In 20.83 per cent. of 72 cases of gastric ulcer there was no percussion pain. In all the others with positive findings there was pain on pressure likewise. In 11 cases of nervous dyspepsia percussion elicited pain just as in the ulcer cases. The outlines of the positive zone were irregular and inconstant.

Deutsche Zeitschrift für Chirurgie, Leipzig

June, 1921, **163**, No. 5-6

*Operative Treatment of Gastric Ulcer. H. Gross.—p. 289.
*Volar Luxation of Distal End of Ulna. H. Neuberger.—p. 365.
Isolated Fracture of Scaphoid Bone. A. Rosenburg.—p. 394.
Close Roentgen-Ray Treatment of Mammary Cancer. F. M. Groedel. —p. 405.
*Abdominal Adhesions. T. Naegeli.—p. 408.
Atresia of Bowel with Prolapse. M. Ichenhäuser.—p. 417.
Fracture of Anterior Superior Iliac Spine. F. Brandenberg.—p. 422.

Operative Treatment of Ulcer in Body of Stomach.—Gross says that the ultimate outcome in 199 cases has shown that gastro-enterostomy alone may give surprisingly good results, and also that the danger of hemorrhage, of perforation, and of malignant degeneration of ulcers is liable to be overestimated. In one case permanently cured by what he calls enlarged excision, that is, cutting off the pylorus as the first step and slitting the lesser curvature lengthwise, the excised ulcer showed cancer under the microscope. By cutting the stomach loose from the pylorus and making a new and ample outlet, mechanical conditions favor the emptying of the stomach, and we do away with the stiff and narrow portions which invite pathologic conditions. He has had no recurrences after his enlarged excision technic. It leaves the stomach shaped something like a moccasin or shoe.

Dislocation of Lower Radio-Ulnar Articulation.—Among the thirty-four cases of volar luxation of the distal end of the ulna reviewed by Neuberger, is one published in THE JOURNAL, Sept. 6, 1913, p. 767. The mechanism and means for reduction are described.

Abdominal Adhesions.—Naegeli investigated for cicatricial bands at a later operation in 148 old laparotomy cases. They were found in all but thirty cases. Sometimes they caused no disturbance, and in the cases with disturbances attributed to the cicatricial bands, insufflating air for pneumoperitoneum put an end to the disturbances, although the bands had not been broken up thereby. We must not be misled, he adds, into ascribing symptoms merely to bands or superficial adhesion when there may be some grave cause elsewhere.

Jahrbuch für Kinderheilkunde, Berlin

1921, **95**, No. 3-4

*Acute Dyspepsia in Infants. G. Bessau, S. Rosenbaum and B. Leichtentritt.—p. 123.
*Paradoxic Reaction to Diphtheria Vaccine. H. Opitz.—p. 139.
*Cirrhosis of Liver in Infants. E. Lindemann.—p. 153.
*Coryza in Infants. P. Ivens and G. Stern.—p. 165.
*Scarlatinal Arthritis. P. J. de B. P. van Amstal.—p. 186.
*Index of State of Nourishment. J. Peiser.—p. 195.
*Rachitic Disturbance in Growth. H. Maass.—p. 207.
*Recurring Attacks Suggesting Minor Epilepsy. J. Stargardter.—p. 230.
*The Breast-Fed Since the War. R. Hammann.—p. 242.

Prevention of Dyspepsia in Infants.—In this second article on acute dyspepsia in infants, the length of time the food stays in the stomach is incriminated as an important element in the clinical picture. In normal infants the stomach and small intestine are free from colon bacilli, and there is much evidence to sustain the assumption that this is due to the complete emptying of this part of the digestive tract in the intervals between the periods of digestion. When the food lingers unduly long in the stomach, or the intervals between feedings are too short, this normal mechanism is disturbed. Anything that prolongs the period of digestion and thus delays the emptying of the stomach and small intestine upsets the normal process and sequence. The rapid digestion and evacuation of breast milk is an important factor in keeping conditions normal in the digestive tract. Ten of the various mixtures for infant feeding were tested for the length of time each remained in the stomach. The fluid was introduced through a tube into the stomach after at least six hours of fasting, and the time it left the stomach was determined by fluoroscopy, sometimes corroborated by lavage. No contrast meal was given; the air bubble showed when the stomach emptied itself. Over 300 tests were made on thirty-two infants.

Among the important facts confirmed by this research is that when an amount of food is given below the actual nutritional requirements of the infant, the food is digested and passed along rapidly, regardless of its composition. In acute dyspepsia, therefore, the kind of food allowed is of less moment

than its quantity. The protein in cow's milk was discovered to be the element that retards digestion and the emptying of the stomach. After predigestion of the protein, even undiluted cow's milk leaves the stomach just as rapidly as breast milk. The infant stomach is relatively unable to digest the protein in cow's milk. This entails delay in passing it along, with resulting stagnation, fermentation and invasion of the upper bowel by the colon bacillus. Artificial feeding of infants should therefore aim to prevent stagnation in the stomach, by giving food that is rapidly passed along. This can be insured by keeping the quantity small and by predigesting the protein. This principle for artificial feeding, learned from roentgen examination of mainly healthy digesting infants, differs completely from the principle hitherto applied. The latter aimed not to prevent stagnation but to annul its evil effects. Albumin milk, for instance, lingers exceptionally long in the stomach, but it overcomes most of the evil effects from the stagnation.

Local Reaction to Injection of Diphtheria Vaccine.—Opitz ascribes to an endotoxin the paradoxic local response sometimes observed with injection of diphtheria vaccine.

Cirrhosis of Liver in Infant.—The liver was evidently substandard to begin with, and ascending infection from the bowel induced a defensive reaction in the liver which took the form of cirrhosis. The spleen was also enlarged and the spleen was removed, but the male infant of 5 months died the following day with symptoms of cholemia. The course of cirrhosis of the liver in children is generally acute, but among the 350 cases on record the range was from a few years to eighteen months and, in Vogel's case, eight years. Only three instances of secondary cirrhosis of the liver in infants are known aside from syphilis, tuberculosis and malformation of the liver.

Coryza in Infants.—Ivens and Stern tabulate the manifold and constantly variable bacteriologic findings in forty infants with coryza.

Arthritis in Scarlet Fever.—Van Amstal was called to a girl of 10 with what seemed to be acute articular rheumatism. But inquiry elicited that the child had had unrecognized scarlet fever five weeks before, a few days of pain in the throat, red skin and desquamation. The polyarthritis was evidently of scarlatinal origin, and his review of the literature confirms the possibility of sepsis in scarlet fever as well as in typhoid and pneumonia, with the resulting complications and after-affections. Even scarlatinal peritonitis is possible. Treatment of scarlatinal arthritis aims mainly to ward off permanent injury; repose is absolutely indispensable. He gave in addition in the case described a polyvalent antipyogenic vaccine, and relates that the fever and pain subsided after the first injection, and conditions improved so rapidly that only three injections in all were required.

Index of State of Nourishment.—Peiser compares the different standards that have been proposed as an index of the state of nourishment at the moment. The thickness of a fold taken up in the abdominal wall gives an excellent idea of whether the subject is normal or undernourished. He takes up a lengthwise fold, to the left of the navel, and on a line with it, and measures the base of the fold with a slide gage. The findings in 500 children were compared with their clinical history.

Pathogenesis of Rachitic Deformity.—Maass explains that the lack of calcium weakens the bone, and it yields more readily to the strain of weight bearing or other mechanical injury. The lack of calcium impedes normal endochondral ossification. The zone of apposition of the spongiosa bone suffers particularly from the pathologic pressure. Bone growth continues, but it is along the lines of lesser resistance, as a river dammed up seeks a new channel.

Pyknolepsy.—Stargardter reports four cases of repeated minor attacks in children which resemble epilepsy in some respects and not in others. Children of this type are usually intelligent beyond the average. He describes the clinical picture in his four cases. Mental processes can occur during the seizure but for some reason they do not reach the consciousness. Caffein was the only drug that bridged this gap. By its efficacy in rousing the attention, caffein succeeded in arresting the seizures completely in one boy of 8, and in reducing their number from eight to one a day in a girl of 7. One girl now 8 has had the attacks for two years, sometimes as many as fifty a day. The family refuse to allow any medication. The fourth patient has had these repeated minor attacks since the age of 2. At 14½ severe epileptic seizures developed and have recurred often during the year and a half since. The pyknolepsy therefore may develop on the soil of epilepsy; in this case the seizures continue after puberty and they are not so numerous. In the majority of cases, however, the soil is merely simple endogenous nervousness or a psychopathic constitution with or without a tendency to hysteria. On this soil the numerous simple and uniform attacks develop with other signs of the neuropathic constitution, and the attacks usually cease as puberty comes on. Stargardter applied various tests in his cases with epinephrin, pilocarpin, atropin and other drugs but with conflicting findings with all except caffein.

Progress of Breast-Fed Infants Since the War.—Hammann has noticed that breast-fed children in the last few years do not seem to thrive as they used to, and he theorizes to explain this.

Therapeutische Halbmonatshefte, Berlin

April 15, 1921, **35**, No. 8

Indications for Surgical Treatment of Nephritis. H. Eppinger.—p. 225.
Vegetable Extracts for Therapeutic Purposes. H. Aron.—p. 233.
*Treatment of Febrile Pulmonary Tuberculosis. Gerty and K. Cori.—p. 236.
Transduodenal Lavage. M. E. Jutte (New York).—p. 239.
Treatment of Infantile Syphilis. S. Engel and Martha Türk.—p. 242.
Relation to Vaccinetherapy of Baths in Rheumatism. E. Weiss.—p. 246.

Treatment of Feverish Patients with Pulmonary Tuberculosis with Injections of Menthol-Eucalyptus Oil.—Gerty and Cori report the results in 168 cases in which they combated fever in tuberculous patients with the following preparation, which is a modification of that recommended by Berliner: pure iodin, 0.1 gm.; camphor, 0.5 gm.; menthol, 10.0 gm.; eucalyptus oil, 10.0 gm., and castor oil, 20.0 gm. They inject from 0.5 to 1.0 c.c. intramuscularly between the spina iliaca ant. sup. and the trochanter, two or three times weekly. The injections cause occasionally pain in the leg, which may last twenty-four hours or so. Irritative effects on the kidneys were not observed. On the appearance of albumin in the urine the injections must be discontinued. Of 50 patients in the second stage (Turban system) there were only 2 whose fever did not yield to this treatment. From one to twenty-four injections were given. Of 85 patients of the third stage (Turban), 44, or 51.8 per cent., were relieved of their fever after from one to twenty-four injections.

Zeitschrift für urologische Chirurgie, Berlin

July 18, 1921, **7**, No. 1-3

*Carcinoma of Male Urethra. W. Rizzi.—p. 1.
*Sarcoma-Carcinoma of Bladder. S. Kraft.—p. 12.
*Disinfection of Catheters. S. Hadda.—p. 20.
*Localization of Ureter Fistula. A. v. Lichtenberg.—p. 40.
*Ischiorectal Prostatectomy. O. Orth.—p. 42.
*Diagnosis of Disease in Urinary Apparatus. W. Baensch and H. Boeminghaus.—p. 48.

Carcinoma of Male Urethra.—Rizzi adds another to the fifty-two cases of primary carcinoma of the male urethra he has found on record. The primary lesion was in the bulb of the meatus. The patient was a public official of 49 with a healthy child. The stenosis without present gonorrhea, the pain during micturition, and the bleeding from the urethra were explained by the tough infiltration palpated in the urethra. Extirpation of the penis and inguinal glands was facilitated by slitting the scrotum along the rhaphe. The patient has been free from disturbances since, but now seven months later, a small tumor can be felt in the perineal scar, presumably a recurrence.

Sarcocarcinoma of the Bladder.—Kraft removed the malignant tumor in the bladder of the man of 78 through the peritoneum, but recurrence developed of such malignancy that in forty days the tumor was larger than a child's head.

Disinfection of Rubber Catheters.—Hadda tabulates the findings in long series of tests which have demonstrated, he says, that elastic catheters can be absolutely reliably sterilized with mercuric oxycyanid. The catheter is left for twenty-four hours in a mixture of 0.5 gm. mercuric oxycyanid; 50 gm. glycerin, and 50 gm. distilled water. This

mixture does not deteriorate the catheter material nor irritate the urethra, while the catheter does not require any further lubrication. The catheter is kept in this solution in a horizontal glass vial curved like the catheter, with two short legs at the bend to keep it from rolling, and a rubber stopper.

To Locate a Ureter Fistula.—Lichtenberg introduces an opaque graduated catheter into the ureter, and an opaque sound is passed up through the fistula opening into the genital organs. The roentgen shadow of the point where the two meet locates the fistula.

Ischiorectal Prostatectomy.—Orth declaims further on the advantages of Voelcker's ischiorectal prostatectomy, and reports ten more cases in which it was applied. There was no postoperative orchitis or epididymitis in any instance. The technic was described in THE JOURNAL, Feb. 12, 1921, p. 487. He enumerates certain minor points to be observed, especially restriction of fluids after the operation. The kidneys seem to recuperate the more rapidly, the less the task imposed on them.

Roentgen-Ray Diagnosis of Disease of Urinary Apparatus.—This extensive article is accompanied with twenty-seven diagrams or roentgenograms, and 513 bibliographic references.

Zentralblatt für Gynäkologie, Leipzig

June 25, 1921, **45**, No. 25

Combined Roentgen and Radium Therapy in Hemorrhagic Uterine Affections. W. Weibel.—p. 885.
*Stone Formation in the Uterus. G. Hahn.—p. 888.
*A Symptom of Extra-Uterine Pregnancy. H. Hellendall.—p. 890.
Central Rupture of Perineum in Child-Birth. E. Weinzierl.—p. 891.
Supravaginal Removal of the Unopened Uterus in Premature Detachment of the Placenta. L. Heidenhain.—p. 895.
*Hot Sand Baths in Gynecologic Cases. R. Aschenbach.—p. 896.

Urinary Calculus in the Uterus.—Hahn reports the case of a woman of 65 who for many years had suffered from colicky pains in the lower abdomen. Various physicians consulted had diagnosed gallstones, cramps in the stomach, renal stones, nervous symptoms, etc. When Hahn was called to the patient she complained of pains resembling birth pains, in the abdomen and in the back. In her forty-fifth year the patient had been delivered of a child, on which occasion the forceps had been used. Examination revealed two large-sized stones within the uterus. The forceps, twenty years before, had caused a vesico-uterine fistula, since which time incontinence of urine had persisted. The urine flowed not only through the urethra from the bladder, but also into the uterus and through the vagina. In the course of the twenty years the urinary calculi had formed in the uterus. On account of her age the woman would not submit to an operation to cure the fistula. After the removal of the stone, she had no further pains and recovered her health, but died later.

Discoloration in Region of Umbilicus with Internal Hemorrhage.—The suspicion of tubal pregnancy with extravasation of blood was confirmed in Hellendall's case by the bluish green discoloration of the navel, the seat of a small umbilical hernia. This bluish green sheen grew more pronounced in the erect position. The laparotomy revealed a left tubal pregnancy, the ovum apparently intact, with fresh and old blood clots.

Hot Sand Baths in Parametric Exudates and in Pyosalpinx.—Aschenbach discusses the advantages of sand baths, and more particularly partial sand baths, over hot air baths and mud baths in certain gynecologic cases. By means of the intense heat locally applied and remaining constant for hours, as brought about by partial sand baths, a marked flow of blood to the genital organs takes place, whereby the rapid resorption of exudates is effected. The heat imparted by sand baths is better borne than that of hot air baths and mud baths, for which reason sand baths may be given at a temperature of 62 C., which would be impossible with hot air and mud baths. The perspiration is readily absorbed by the sand.

Mededeel. v. d. Burg. Geneesk. Dienst, Java

1920, No. 9. Parallel Dutch-English Edition

*Public Health Service at Sourabaya.—p. 2.
*Infant Mortality in Java. S. D. Habich-Vreenhuijzen.—p. 82.

Public Health Service in Dutch East Indies.—Fifteen photographs accompany this report, showing the model arrangements at many points for quarantine, transportation of contagious disease, ambulance, antimosquito work, etc.

Infant Mortality in Java.—As infants are often given rice with banana in Java when they are a week old, the frequency of intestinal derangement is not surprising, and the writer adds that occasionally an infant chokes to death on the rice. The infant death rate in four districts investigated was from 400 to 800 per thousand. In one district the birth rate was 4.8 per cent. of the total inhabitants—the infant death rate 351 per thousand.

Norsk Magazin for Lægevidenskaben, Christiania

July, 1921, **82**, No. 7

*Bandl's Ring During Opening Period. C. Lange-Nielsen.—p. 481.
*Diagnosis of Spinal Cord Tumors. Sofus Widerøe.—p. 491.
*Strychnin Poisoning from Therapeutic Dose. A. Arnesen.—p. 495.
Amyloid Tumor in Larynx. V. Uchermann and F. Harbitz.—p. 497.
*Disease in the Sudan. H. Engelsen.—p. 501.

The Moving Upward of Bandl's Ring.—Lang-Nielsen found that the contraction ring was evident in 4 per cent. of 1,564 childbirths during the opening period, and that it rose higher and higher until it had nearly reached the umbilicus. As this occurred almost exclusively in primiparae and with contracted pelvis, and no special cause could be discovered, he regards it as a functional anomaly, a warning that the uterus is inclined to be functionally substandard.

Intraspinal Injection of Air in Diagnosis of Tumors.—Widerøe injects by lumbar puncture from 3 to 5 c.c. of air after allowing twice this amount of spinal fluid to drip out. In four of his ten cases there were no subjective symptoms thereafter; these were mostly hydrocephalus cases. In two instances, headache and tinnitus followed; these were brain tumor cases. In a third group the pressure of the air on its way up to the brain induced transient symptoms from the spinal cord, pains in the legs or spreading upward. This occurred in a patient with cerebral syphilis, and in an epileptic. A fourth group included the spinal cord tumors and there were no symptoms at once. But a few hours later paroxysmal pain developed, always at the same point, the spot where the tumor was found. The pain spread thence into the thorax. As this pain subsided, headache developed. The pain can be explained only by the air working its way past the tumor, as the neoplasm was found exactly at this point. A case is described in a woman of 39 who for eighteen months had had pains between the scapula and in the legs, and had been treated for "gout." Finally she had to strain to urinate, and the pains and spastic condition in the legs suggested a tumor in the spinal cord. An operation at the supposed site, the sixth thoracic vertebra, failed to reveal any tumor. The symptoms after the transient improvement suggested that the tumor was at the eighth cervical segment, but injection of 50 c.c. of air, after allowing 67 c.c. of spinal fluid to escape (without aspirating), located the tumor at the vertebra prominens. No symptoms followed the injection, but the seventh hour severe pain developed at this vertebra, spreading to the chest but not to the arms, and headache followed. There was considerable bleeding at the removal of the psammo-epithelioma, 3.5 cm. long, found at the seventh cervical vertebra as expected, but there was no reaction to the operation and the patient began to improve at once, free from pains. He remarks that Dandy's air insufflation proved of vital importance in this case.

Strychnin Poisoning Under Therapeutic Dosage.—Arnesen gave the strychnin during collapse in diphtheria. It answered its purpose, reviving the child, but he says it was "driving the devil out with Beelzebub," as the child died the third day from circulatory failure.

Disease in the Sudan.—Engelsen describes his study of the pathology of central Africa during a stay in the Sudan. Cancer is rare; only one case of carcinoma and three of sarcoma had been known in ten years. The Sudan is a rich field for the bacteriologist as it gathers the Asiatic diseases and the diseases peculiar to Egypt and Africa as well as the cosmopolitan diseases. He says that yaws realizes the ideal of treatment, as a single injection of arsphenamin seems to cure it completely, with no recurrence in the cases treated up to seven years ago.